A CAHNERS PUBLICATION

MARCH, 1961/75c

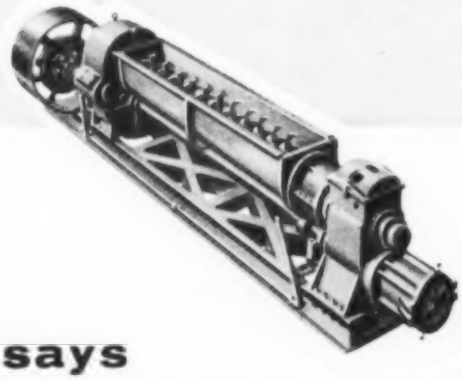
# Brick & Clay RECORD

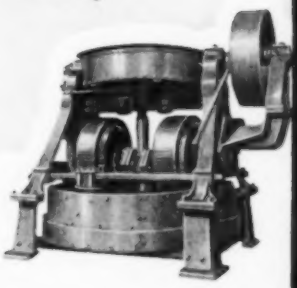
de Pacific Clay Products' Santa Fe, Calif. Plant—See Page 62

## Additives—Wollastonite Effective in Clays

## Packaging—A Dealer Packages to Stay Competitive

# "Wonderful Workhorses,"





says

## ALTON BRICK

- management
- production
- maintenance

## in reporting on BONNO units at Maryland Heights Pla

*—PRODUCTION OF MORE THAN 50,000,000 BRICK WITHOUT ANY DOW TIME EXCEPT FOR REPLACEMENT OF NORMALLY WEARING PARTS.*

*—GRINDING OF NEARLY 2,000,000 TONS OF SHALE AND STILL GOING STRONG*

These are two big reasons behind the title of "wonderful workhorses" bestowed on a Bonn Greyhound Extruder and a Bonnot 10-foot Dry Pan by the management-production-maintenanc supervisors at the Maryland Heights Plant of the Alton Brick Company in St. Louis, Mo.

Experience with the Bonnot Dry Pan covers 20 years—over 5 with the Bonnot Extruder. addition to profitable dependability for maintaining rugged production schedules, the Bonn Greyhound is completely satisfactory with either steam or oil dies—for all sizes of bric With the Bonnot Greyhound, Alton shale is processed more accurately because it's practic to hold a higher vacuum . . . operating efficiency is increased because of easy accessibili of "wearing parts."

**Bonnot engineers and machines will provide the same manufacturing economies for your plant. At Bonnot, your problems will get prompt attention, with the accuracy of the answers based on know-how gained by more than 70 years of service to leading clay processors throughout the U. S. A. Call, wire or write today . . . for greater profits during "the Soaring 60's"!**

PLANT MANAGER M. P. HALL CHECKS THE BONNOT "ABSOLUTE GAUGE" (CONTROL) WHICH HE FINDS EXTREMELY VALUABLE IN PRODUCING THE QUALITY-TEXTURED RED BRICK FOR WHICH ALTON'S MARYLAND HEIGHTS PLANT IS FAVORABLY KNOWN.

PRODUCTION MANAGER TED SCHUTTENBERG (LEFT) JOINS PLANT MANAGER HALL AFTER A "QUICK CHANGE" FROM STANDARD TO NORMAN DIE ON "THE BONNOT WORKHORSE."

DRY PAN OR EXTRUDER, BONNOT MACHINES GET AN "AROUND THE CLOCK VOTE OF CONFIDENCE" FROM ASST. SUPERINTENDENT RUSS RICHARDSON, WHO REPORTS BONNOT EQUIPMENT "EASIEST TO HANDLE" IN HIS MANY YEARS OF CLAY-PROCESSING EXPERIENCE.

**The BONNOT Co.**

CANTON 2, OHIO

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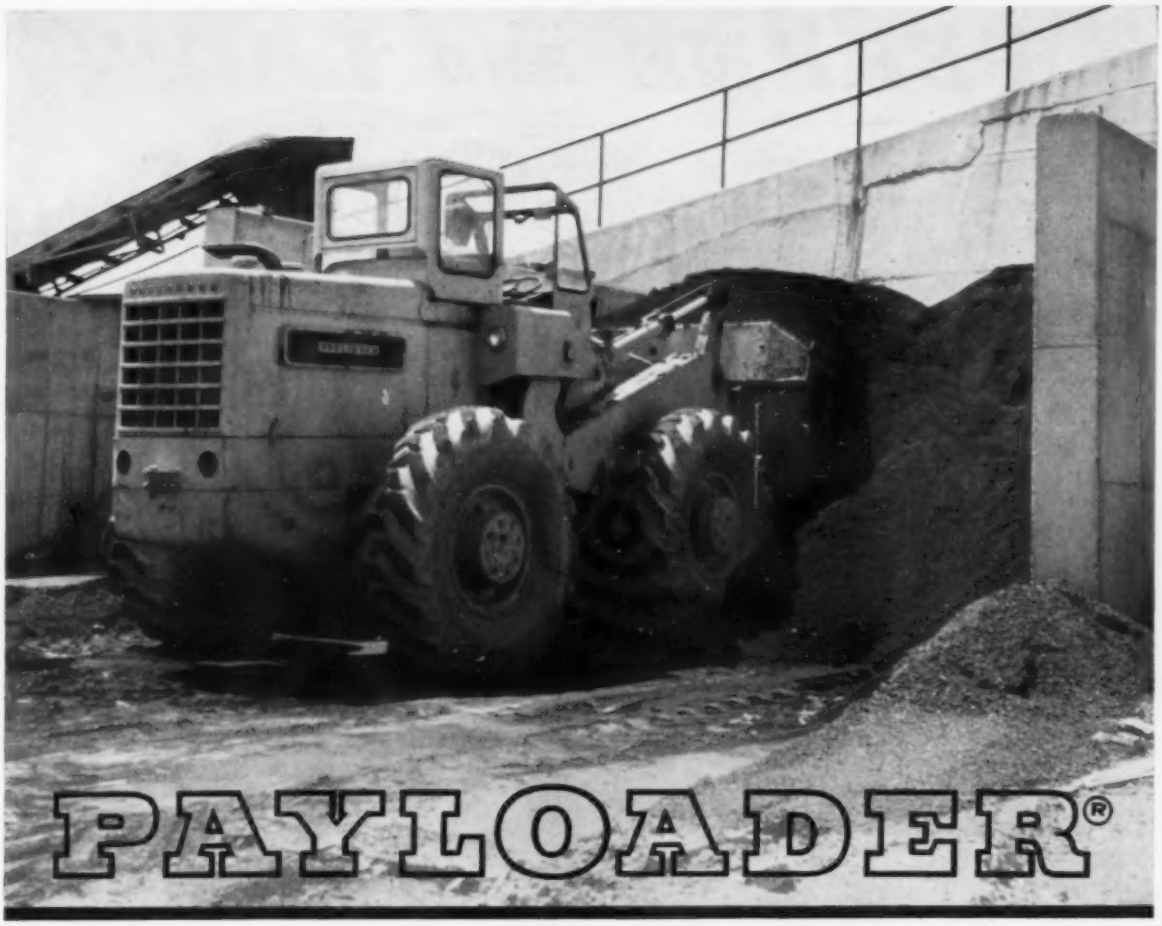
| CRUSHERS | AUGER MACHINES | |
| HAMMER MILLS | VACUUM MACHINES | |
| DRY PANS | SPECIAL EXTRUDERS | CUTTERS |
| WET PANS | PUG MILLS | REPRESSES |
| GRINDERS | SPECIAL MACHINES TO ORDER | DIES |
| FEEDERS | DIRECT FOUNDRY SERVICE | MIXERS |




# "Handles our work very efficiently..."

*"16-hour daily production with our two PAYLOADER units here in the plant, has proven them to be dependable," says B. T. Day III, Asst. Supt. "We've experienced long overall machine life with normal maintenance. The four wheel drive model H-90 is well balanced for maximum load carrying with plenty of engine power and handles our work very efficiently."*

American Fire Clay & Products Co., Canfield, Ohio, specializes in the production of plastic fire clays for the steel and foundry industries. It has two PAYLOADER tractor-shovels — a 1,500-lb.-capacity HA for unloading box cars and handling materials indoors, and a 4-wheel-drive 9,000-lb.-capacity H-90 for outdoor materials handling, pit clean-up, snow removal and other maintenance work.

Like hundreds of other industries with varied materials handling problems, this progressive company has found that the flexibility, productive-ability and dependability of PAYLOADER tractor-shovels pays off in many ways.

There is a proven PAYLOADER in a size and type to fit your every need — with options of gas, diesel or LPG power. There are also a number of extra attachments such as fork lifts, sweepers, snow plows and blades to increase their usefulness. Your Hough Distributor has complete service and parts departments, backed up by factory service personnel, to keep your PAYLOADER investment profitable.

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LIBERTYVILLE, ILLINOIS
SUBSIDIARY - INTERNATIONAL HARVESTER COMPANY

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**Send data on PAYLOADER units and the many attachments.**

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TITLE
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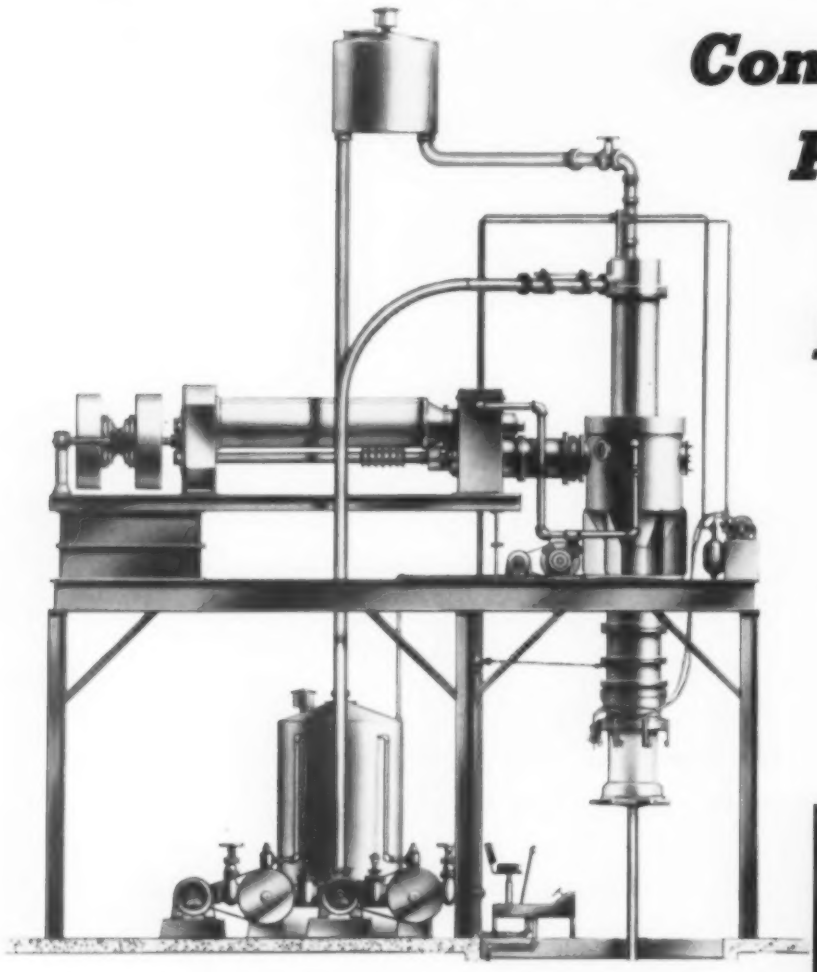
CITY STATE

Circle Service No. 11

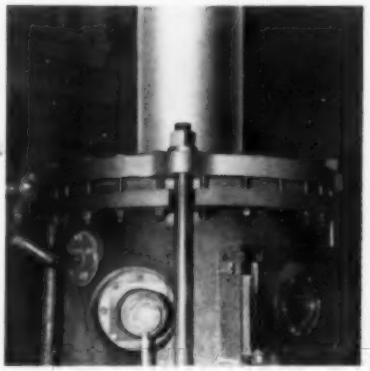
← Circle Service No. 10

# PEARNE AND LACY



## Convert your Press from Steam to Hydraulic

SAVE 60% OPERATING COST



One method of connecting to existing mid section

With any press in good condition the steam cylinder can be replaced with a hydraulic cylinder and the press converted to hydraulic operation.

Single or 3 rod press can be converted to hydraulic operation. While being converted, 3 rod presses can be changed to single rod if desired.

***For details and rough estimates send us information as to the type of steam press you are now operating. Specify if single rod or three rod press.***

*Engineers and Manufacturers of Automatic Handling and Finishing Equipment for the Ceramic Industry.*

**P.O. Box 3366, Terminal Annex,**
**Los Angeles 54, California  Phone: CU 3-1268**

Eastern Representative
Dwight B. Hendryx, 6621 Darlington Rd., Pittsburgh, Pa.

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Circle Service No. 12

### THIS MONTH'S COVER

Pacific Clay Products, with headquarters at Los Angeles and plants at Santa Fe Springs, Corona, Stockton and Camanche, Calif., is one of the leaders in the clay pipe industry. The cover illustration shows a Pacific tunnel kiln with loaded cars carrying unfired ware. On page 62 of this issue begins a story detailing many phases of the Pacific operation.


A CAHNERS PUBLICATION

# Brick & Clay RECORD

Contents for March, 1961 • Vol. 138, No. 3



**56 Air Conveyor Speeds Stiff Mud Production**
Use of air conveying and installation of a fully automated system has permitted North American Refractories to increase its stiff mud production potential while actually reducing the plant space required.

**58 Low Cost, Flexibility, Quality Mark Nebraska Operation**
New facilities at Nebraska City Brick & Tile Co. almost triple the daily capacity at the plant using the same labor force as before. Low cost, flexibility and quality production were the major considerations that went into the planning of this plant.

**62 Pacific Clay Pioneers in Pipe Progress**
This forward looking firm pioneered in the manufacture of clay pipe on the west coast and has been in the forefront of pipe progress throughout its history. Our story details the firm's "firsts" and the production methods which have proved so successfull.

**66 Best Bricks Packages to Stay Competitive**
Moving 5 to 7 million brick a year in a highly competitive cost-conscious market requires a dealer to provide his customer with a better-than-average product at a competitive price. Best Bricks, Inc., serving the Chicago area, finds packaging provides a large part of the answer to his problems.

**68 Wollastonite Effective Additive for Structural Clay**
This material, long established in ceramic wall tile, is relatively new to the structural clay products industry. Evaluations made in this industry have revealed savings through reduced losses, lowered costs and improved product quality.

**70 See Big Increase in Use of Brick and Tile**
Forecasts of a substantial increase in the use of brick and tile in 1961 headlined the second annual clay industry sales conference sponsored by Region 4 of SCPI.

**71 Discuss Coupling Materials Testing**
Testing of coupling materials and other aspects of testing were discussed at the research meeting of the National Clay Pipe Manufacturers, Inc.

**77 Improve Firing of Heavy Clay Products**
The sixth in the series by J. George Seanor.


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*Leading Clay Journal of The World*
*Established* 1892; *Now in 68th Year*

The magazine of brick, drain tile, structural tile, clay aggregate, terra cotta, roofing tile, refractories, clay pipe, and abrasives.



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# Monolithic Construction Proved Better than Block for Kiln Car Tops!

***Two year test proves PORTER FIRMCAST ideal refractory top for kiln cars. Firmcast monolithic top virtually eliminates maintenance, reduces sand leveling requirements. Develops full ceramic bond at 2000°F.***

Porter Firmcast hydraulic setting castable refractory was tested for two years as a kiln car top, in direct comparison with clay block constructions. The results are conclusive. Firmcast monolithic tops are a highly practical improvement!

**MAINTENANCE:** Porter Firmcast developed a solid ceramic bond at a 2000°F. operating range, (the operating range of the test kilns) building a tough maintenance-free top. Out of 34 cars tested, only one minor repair was required on *one* car during the entire two year test. (Compared to a usual schedule of major maintenance after every 4 heats required by block constructions.)

**INSTALLATION:** Only 4-manhours needed to cast an 8″ x 7′ x 5′6″ top with Firmcast . . . no leveling . . . no mortaring.

**SAND LEVELING:** Firmcast's resistance to abrasion produced smoother decks for longer periods of time. Settings required far less sand leveling. Distortions practically eliminated. More uniform heating, even in first courses.

**SAND LOSS:** Sand from green block, given less opportunity to escape between large monolithic sections, did not foul seals nor decrease original car insulation.

Those are the facts: Better installations . . . improved heating quality . . . less maintenance! Aren't they sound reasons for you to try this improved method of topping kiln cars in your operation? For complete details, write: Kiln Car Tops, *Refractories Division, H. K. Porter Company, Inc., Porter Building, Pittsburgh* 19, *Pa.*

**REFRACTORIES DIVISION** PORTER **H. K. PORTER COMPANY, INC.**

**PORTER SERVES INDUSTRY** with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.

**Circle Service No. 13**

## Increase Your Payloads . . . On Long Hauls Or Short . . . With The **PACK-HAULER®**

It's almost like magic . . . the way one operator can load and unload 6,000 brick . . . in a matter of minutes . . . with the Pack-Hauler.

The tandem Pack-Hauler unit is easily mounted on any truck chassis, delivers cubes at any job site . . . on roughest terrain.

Reduce your truck fleet, make more hauls with bigger payloads . . . and pick up more profits with the Pack-Hauler.

Write today for complete information.

*American Truck Body Company*

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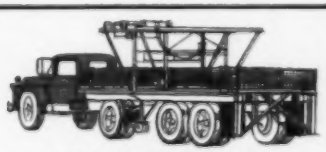
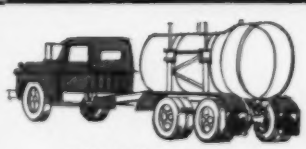
**PACK-HAULER®**


CRANE-HAULER

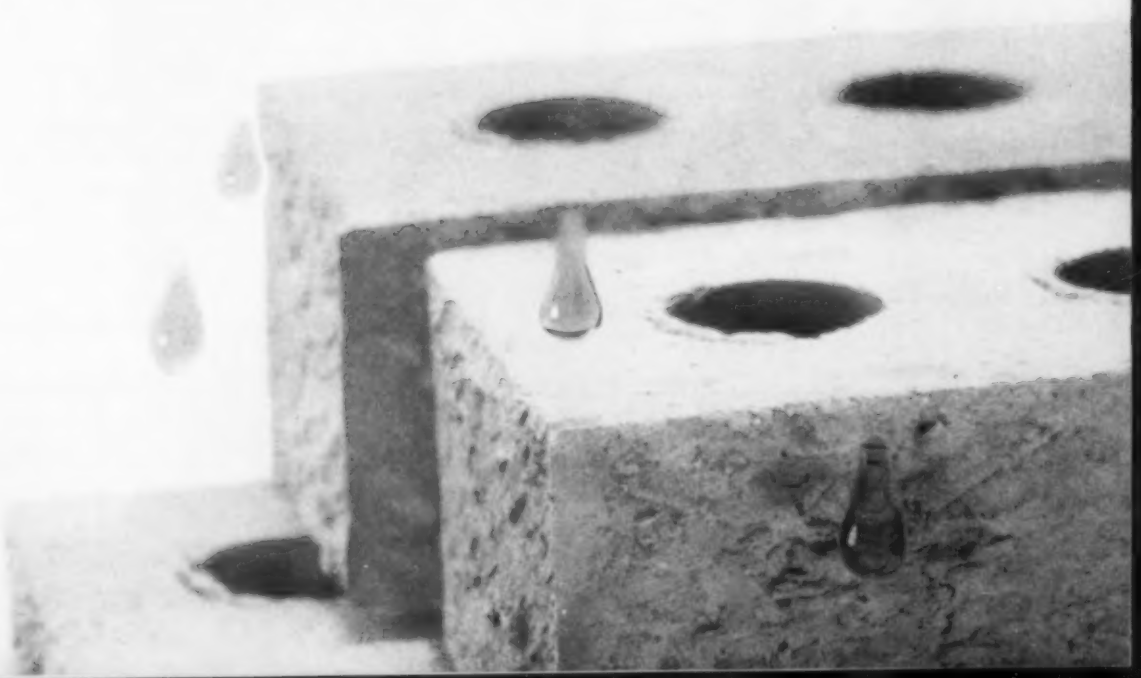
SINGLE


PIPE-HAULER

PACK-GRAB

Circle Service No. 14

# THE IDEA THAT TOOK THE PERSPIRATION OUT OF BRICK PACKAGING



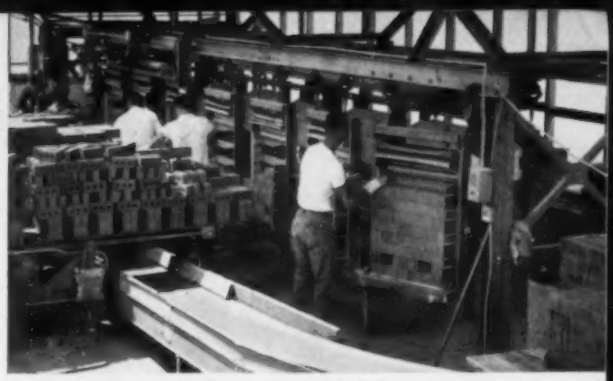
It took the combined experience and facilities of two leaders in their field—Link-Belt and Acme Steel—to perfect the *first* practical system of packaging brick *automatically*. With its coming, the everyday grind, the peak-period panic so prevalent in yard operations is ended.

*How productive is it?* For over three years, the Link-Belt/Acme Steel brick packaging machine has been unitizing up to 130,000 brick per day with a mere handful of men . . . zipping out perfectly squared, securely strapped 100-brick packs every 22 seconds, and without a day's down time—at lowest possible cost. This first-in-the-field initiative assures *proven* performance reliability.

*Who's using it?* Robinson Brick & Tile Co., Denver; Owensboro Brick & Tile Co., Owensboro, Ky.; Henderson Clay Products, Henderson, Tex.; Jova Brick Works, Roseton, N. Y. And producers which have Link-Belt/Acme Steel brick packaging machines on order include Alton Brick Co., Maryland Heights, Mo.; Nebraska City Brick & Tile Co., Nebraska City, Neb. Each machine is *customized* to meet individual plant requirements.

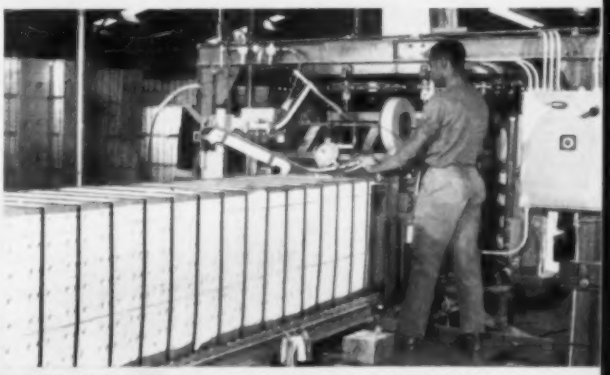
Make arrangements now to view our special color film of the revolutionary Link-Belt/Acme Steel brick packaging system in action. Call your Acme Idea Man, or return the coupon for your reservation.

ACME STEEL IDEA LEADER IN **STRAPPING**

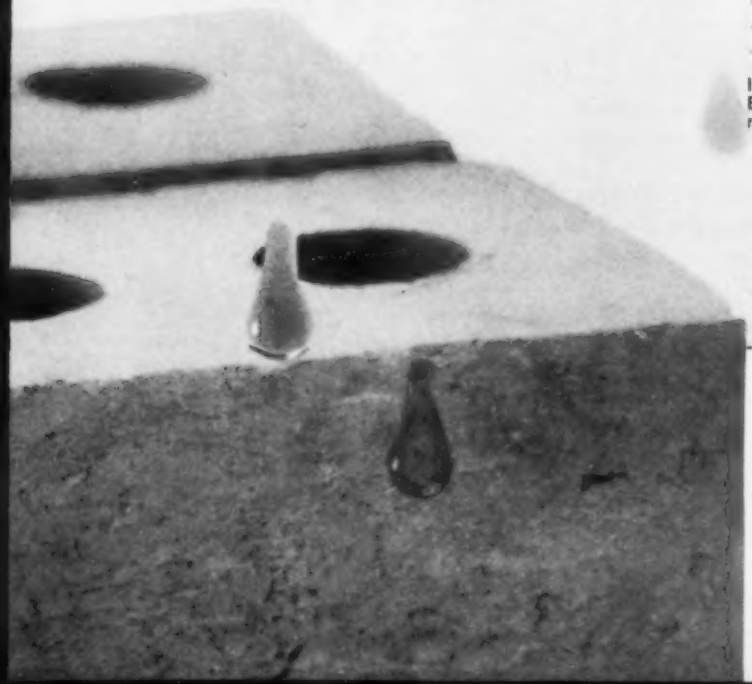


For over two years, Robinson Brick & Tile Co. has been packaging all 65 kinds of their standard, Norman and Roman sizes with the Link-Belt/Acme Steel system.

For the past three years, Owensboro Brick & Tile Co. has doubled previous daily shipments with their Link-Belt/Acme Steel brick packaging machine.



In 1959, Henderson Clay Products installed their first Link-Belt/Acme Steel Machine. Results were so productive, they recently put a second one in operation.



**ACME STEEL COMPANY**
Dept. BCS-31, 135th St. & Perry Ave., Chicago 27, Ill.

☐ Contact me for movie arrangements.
☐ Send reports of your brick packaging system in use.

Name_____

Title_____

Firm_____

Address_____

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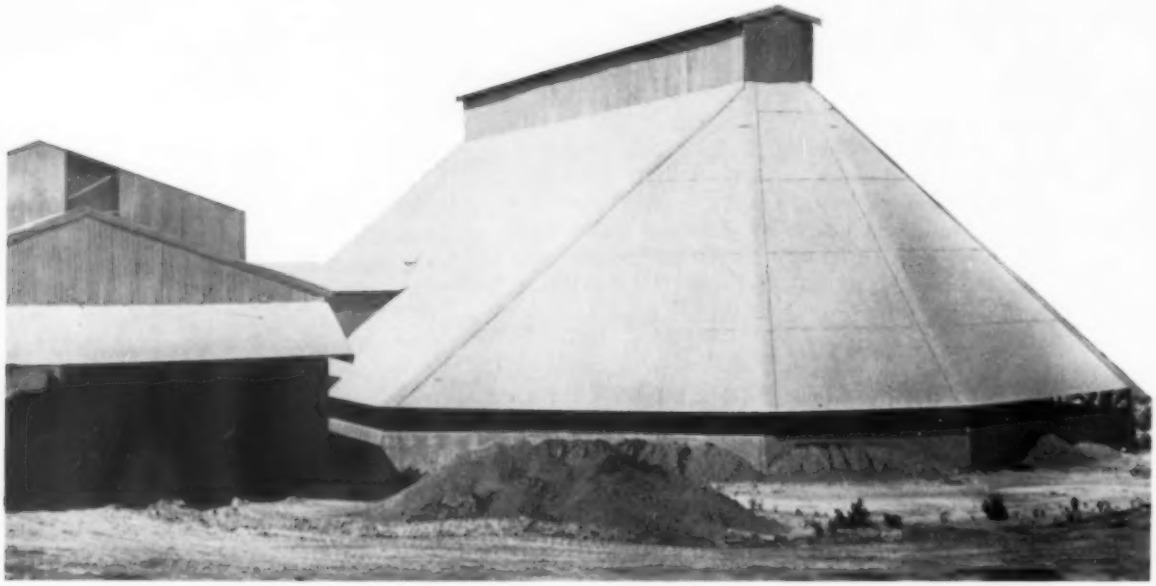
Circle Service No. 15

# VARCO CLAY STORAGE PAYS FOR ITSELF



## *Extended Payment Plan Offers Efficient Way To Build Now*

You pay as little as $1 per ton of storage space for a Varco Clay Storage Building, such as shown above. But it costs even less than that. In fact, it probably won't cost you a cent.

The savings you make by eliminating wet clay down-time will more than absorb the building cost . . . and by taking advantage of the new Varco Extended Payment Plan, it could easily be a building that pays for itself while you use it, without any strain on working capital.

The durable Uniframe Clay Storage Building is a proven, dependable structure, as is every Varco Building.

Before you build, check with the company that specializes in buildings for the brick and clay industry . . . the company that gives you a better building for less . . . VARCO.

Varco

*R. G. Varner Steel Products, Inc.*

JE 4-6030 P. O. Box 781 Pine Bluff, Arkansas

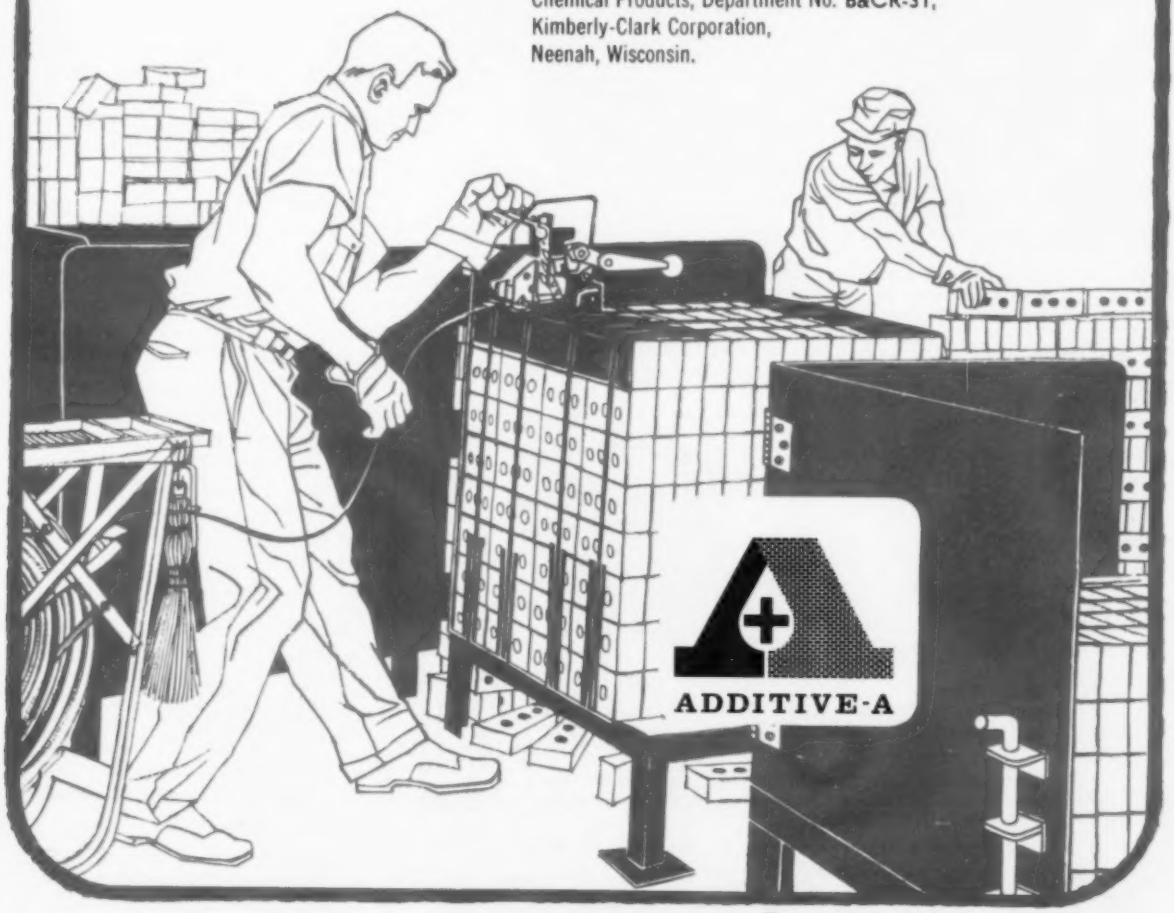
Circle Service No. 16

# NORTH CAROLINA BRICKMAKER LISTS PRODUCT IMPROVEMENTS DUE TO ADDITIVE-A®!

LILLINGTON, NORTH CAROLINA—"We've made several initial improvements in our product since we began using Additive-A clay conditioner," says Mr. J. W. Norwood, secretary of Norwood Brick Company.

"We have increased the shale proportion from 30% to 50%, more than doubling the output of our grinding system. Shale being the short material, the addition of Additive-A helps to give us a stronger, more plastic green brick, while decreasing the power on our single-drive unit by eight to ten amps. The increased shale gives us a richer red at a lower firing temperature."

For descriptive folder on Additive-A, write to:
Chemical Products, Department No. B&CR-31,
Kimberly-Clark Corporation,
Neenah, Wisconsin.




Kimberly-Clark Corporation Contributing Associate S C P I

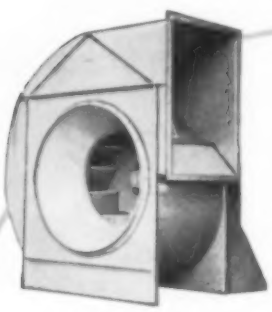
Circle Service No. 17

**ROBBY SAYS:**

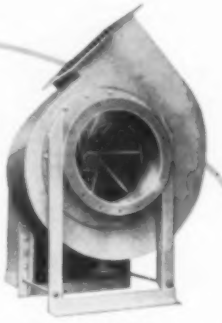
*Look to*
**ROBINSON**
*for Smooth Handling of Air*

**IN KILNS—DRYERS—SINTERING BELTS**

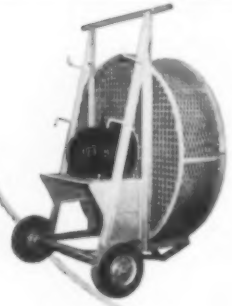
Robinson air handling equipment for the ceramic industry is custom-engineered to meet the specific requirements designed into your tunnel kilns, periodic kilns, sintering belts, or product dryers. Long experience in improving air handling techniques gives Robinson engineers quick understanding of your problem, plus the know-how for solving it. Every Robinson solution has 3 ingredients: (1) efficient air handling, (2) low power consumption, and (3) extended mechanical life.



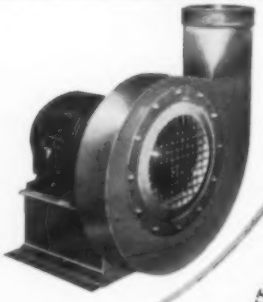
Type J Fan
600 to 450,000 cfm
Bulletin 2500



Type AE Exhauster
400 to 90,000 cfm
Bulletin 5100



Sulky Type
Man Cooling Fan
Bulletin 8001



Type CS
Pressure Blower
Bulletin 1100

SUSTAINING ASSOCIATE SCPI

*Why not take a tip from Robby—look to Robinson for smooth handling of air—the result of expert engineering cooperation. Write today.*

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119 HENDERSON STREET, ZELIENOPLE, PA.

Circle Service No. 18


# Letters
## to the editor

### Chance to Visit Germany

Editor, BRICK AND CLAY RECORD: Last summer you visited my brick works at Bünke and Velpe with a group of American correspondents. I am sorry that I was not there at the time and could not meet you. My son Jurgen, who managed the pla t in my absence, told me about the visit. I hope you still remember your trip to Germany and hope you will always remember the many places you visited.

My plant at Velpe is now running very well and its production is sold out many months in advance. At present I am considering plans to build a new factory at Bünde.

My eldest son (25 years old) has finished his schooling and is looking for a job in the U.S.A. during the summer months. He is interested in securing employment in an American brick plant so he can gain experience and further his knowledge of American methods.

Because of the rates of exchange and the high overhead, I was wondering if it might not be possible to arrange to have an American brick plant owner's son work in my plant during the same period on an exchange basis.

I would be very happy to employ in exchange an American in my brick works and arrange for him to meet many private families.

Heinrich Hensiek
Staloton-Werke
Bünder Tonwerk and
Keramik Industrie
Bünde (Westf), Germany

*Anyone interested in arranging an exchange with Mr. Hensiek is invited to contact F. L. Steinhoff, Brick & Clay Record, who will make the necessary arrangements.*

### Automatic Hacking Machine

Editor, BRICK & CLAY RECORD: We are pleased to hear of your interest in our developments (*Editor's note: automatic hacking machine*) and feel it would be helpful to provide you with some background information.

During recent years we have been successful in the development of automatic systems for handling green brick to hot floor and the tunnel dryer cars, and a number of installations are now in full operation in this country.

However, we have long realized the need for equipment of a much more versatile nature and have been giving considerable attention to the development of an automatic setting, or as you might describe it in the U.S.A. hacking unit, with the objective of meeting the many and varied requirements of brick makers and performing mechanically, all those operations at present carried out by hand. Having built a 1/3 full size model of such a unit which has now been in operation for some months, we are at present completing the installation in the brick works of a full size prototype.

The operation of this equipment is program controlled, and the equipment is capable of setting or hacking brick onto dryer cars or kiln cars in such a manner as to permit their off-loading by fork lift trucks fitted with brick forks. It can also set or hack brick into packs for fork lift truck setting and drawing from a kiln and indeed is capable of hacking facing brick into any desired pattern.

Woodfield Bennett, Ltd.
London, England

### German Seeks Employment

Editor, BRICK & CLAY RECORD: I have just recently come to this country from Germany and am seeking employment as a superintendent in an American brick plant. Can you help me locate such a position?

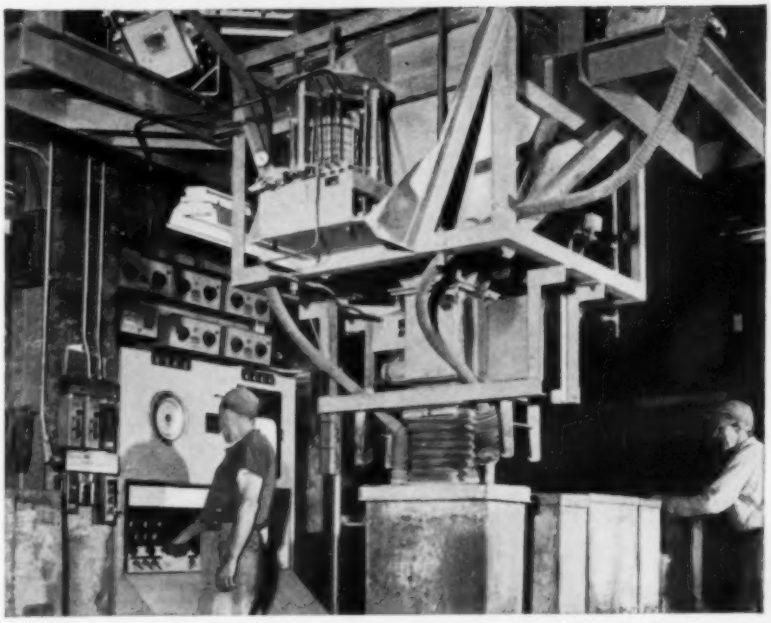
In Germany, I am a registered "Ziegelmeister." Brick plant superintendents in the old country are registered by the State, similar to doctors and dentists and professional engineers in America. I would like very much to become associated with an American brick company to continue my profession.

Any help you can give me will certainly be appreciated.

Frank Huber

*Editors Note: Anybody need a superintendent? If you want to talk to Mr. Huber, contact the editors of B & CR and we will forward your message to him.*


**AT CARBORUNDUM...**



## Accuracy and Instantaneous Control Response with W & C BATCH-WEIGHING SYSTEMS

Critical formulation standards are maintained at lower cost since Carborundum Company has introduced automatic batching of ingredients at their Perth Amboy, N. J. refractories manufacturing plant. The new automatic system—designed with W & C pre-engineered and laboratory-tested "building block" components—has greatly increased production, reduced labor costs, and decidedly improved the accuracy of batch weight control.

Chief reason for the accuracy of W & C Batch-Weighing Systems is the patented Uniforce flexural frame used in supporting both weigh-hoppers and weight transmitters. These unique flexural frames ensure accurate weighing under *all* load conditions, resolve *every* force and moment into a single vertical component applied to the load transducer.

Immediate response to control material flow in *any* batching operation is provided by the W & C Pneumatic Weight Transmitter, a force-balance instrument delivering a highly reproducible, (1 part in 2000) almost *instantaneous* signal directly proportional to net weight. No possibility of overshooting specified ingredient quantities. Practically no maintenance, compared with mechanical systems. The W & C scale is dynamically faster than a beam-and-balance or flexural beam system . . . W & C uses air, has no inertial mass to overcome . . . comes into balance sooner than a mechanical system.

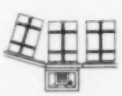
For *consistently* accurate reproduction of bulk material formulations in any batching operation—single ingredient weighing to sequential multi-ingredient proportioning—you can depend on W & C.

**WRITE FOR BULLETINS** Bulletin 30 fully describes W & C Batch-Weighing Systems
Bulletin 14 describes other W & C Automatic Weighing Systems

WC 100

CONVEYOR SCALE SYSTEM

CONSTANT-FEED WEIGH-HOPPER SYSTEMS


CHECK-WEIGHING SYSTEMS

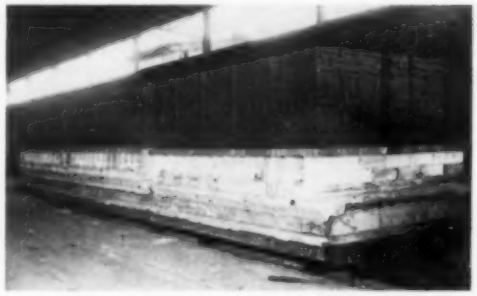
CONTROL PANELS

See page 644 Chemical Engineering Catalog for list of representatives

**Weighing & Controls, Inc.**
Subsidiary of **CompuDyne Corporation**
Industrial Park, E. County Line Road, Hatboro 10, Pa.
Circle Service No. 19

In these days when industry is faced with cost increases for labor and materials . . . brick and tile plant operators are demanding improved quality refractories specifically designed to give longer, more efficient service. Throughout the Structural Clay Products Industry, the trend is swinging to the use of *creatively engineered* refractories manufactured by the A. P. Green Company.

Operators today are compiling enviable service records with A. P. Green tunnel kiln car tops, kiln floor tile, sidewall, and crown brick. Kiln design, methods of firing, type of fuel and operating temperatures . . . all affect refractory service, but A. P. Green refractory products have been especially developed and tested to more than meet the requirements of tunnel kilns and down draft kilns.



## HOW TO REDUCE REFRACTORY COSTS . . . INCREASE SERVICE LIFE

These products are strong, have greater resistance to thermal shock, exceptional stability under load at high temperatures, fulfill many of the requirements of diversified kiln operation, and require minimum maintenance. For engineering know-how plus detailed information on service and specific recommendations, contact your local A. P. Green representative or write A. P. Green Fire Brick Company, Mexico, Missouri.

A. P. Green REFRACTORY PRODUCTS

**A. P. GREEN FIRE BRICK COMPANY**

Mexico, Missouri, U. S. A.

Plants: Mexico, Mo.—Woodbridge, N. J.—Sulphur Springs, Texas—Jackson, Oak Hill, South Webster, Ohio—Climax, Tarentum, Philadelphia, Pa.—Troy, Idaho—Pueblo, Colo.—Macon, Ga.—Birmingham, Ala.

In Canada: A. P. Green Fire Brick Company, Ltd., (Weston) Toronto, Ontario

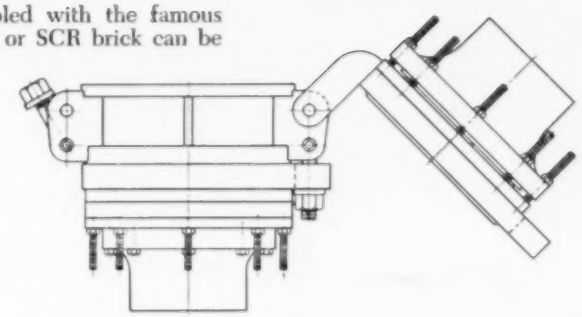
Circle Service No. 20

**A NEW SUBJECT *that You should seriously consider in order to***
***ELIMINATE COSTLY DOWN TIME & UNNECESSARY LABOR WASTE***

# CHAMBERS DOUBLE DIE HUNG HOLDERS

When these money-saving Die Holders are coupled with the famous Chambers #30 Series Cutters, standard, Norman, or SCR brick can be alternated in production schedules with less than a minute changeover from one product to another.

Shown in the photograph above is one of several styles of Double Hung Die Holders. Included are the formers, spacers, and shapers needed to properly mount and balance a complete range of sizes and designs of brick dies. Here you see the "surrounding" type of die holder that many plants have found to be most advantageous. Welded steel construction eliminates all possibility of breakage, and permits the use of safety pins if desired. With this complete assortment of rings, straight or tapering augers can be matched with 8", 12", or oversize brick and tile dies. Let us know your product range for proper selections.



Plants preferring bolt-on brick or tile die designs will use this style where a full range of adjustment makes possible optimum die balance and performance. Full flexibility in this type needs fewer supplemental component parts, and represents less over-all capital cost to you.

SERVING YOUR INDUSTRY FOR OVER 100 YEARS

**CHAMBERS BROTHERS CO.** 1857 1961

**52nd & Media Streets · PHILADELPHIA 31, PA.**

Circle Service No. 21

# HYSTER 4

SpaceSaver 20

SpaceSaver 25

## From HYSTER...World's Largest

| | | |
|---|---|---|
| SpaceSaver 20 | CUSHION TIRES | 2,000 LBS. CAPACITY |
| SpaceSaver 25 | CUSHION TIRES | 2,500 LBS. CAPACITY |
| Challenger 20 | PNEUMATIC TIRES | 2,000 LBS. CAPACITY |
| Challenger 25 | PNEUMATIC TIRES | 2,500 LBS. CAPACITY |

- Monotrol control—Hystamatic transmission foot controlled.
- Fastest lift speed (105 fpm with 2,000-lb. load).
- Highest lift—lowest overhead clearance.
- Instant access to all components that require servicing.
- Functional "human engineered" design by Henry Dreyfuss.

# TOTALLY NEW LIFT TRUCKS

## 2,000 AND 2,500 LB. CAPACITIES • CUSHION AND PNEUMATIC TIRES

## *Builder of 2,000-lb. Pneumatics*

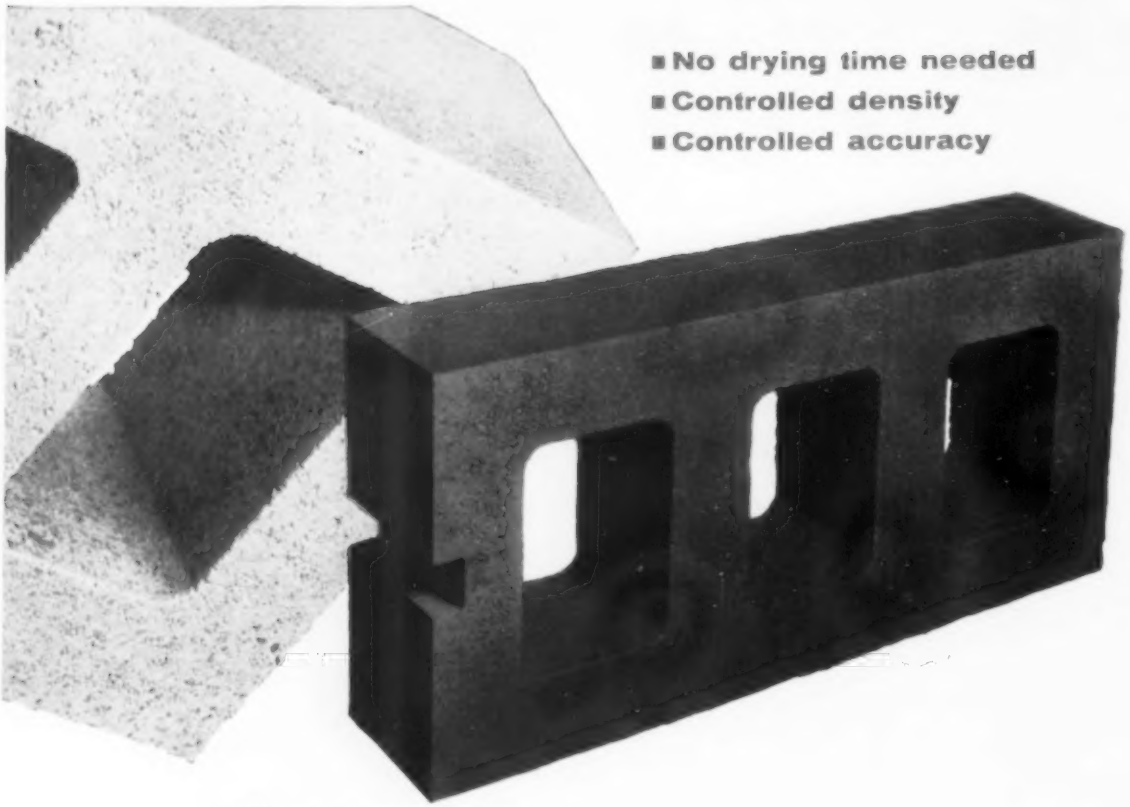
**The line that sets the *ENGINEERING PACE* for all Lift Trucks –**

## HYSTER has it!

You can do 10 hours' work in 8 hours with these new Hyster trucks. They are so new – so far ahead of competition that no other trucks in the 2,000 and 2,500 lb. class can come close in *driver efficiency*, *safety* and *ease of control*, *power*, *lift speed*, *service accessibility* and *compactness*. Four great trucks – cushion and pneumatic tires – with a long list of exclusive features for safer, faster, cheaper handling than you have ever known before. Call your Hyster dealer or write for literature.

INDUSTRIAL TRUCK DIVISION — Lift trucks, mobile cranes, straddle carriers
TRACTOR EQUIPMENT DIVISION — Construction and logging equipment
MARTIN TRAILER DIVISION — Heavy machinery hauling trailers
INTERNATIONAL DIVISION — Overseas manufacturing, sales and service
Manufactured in: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill.
Australia • Brazil • England • France • The Netherlands • Scotland • Union of South Africa

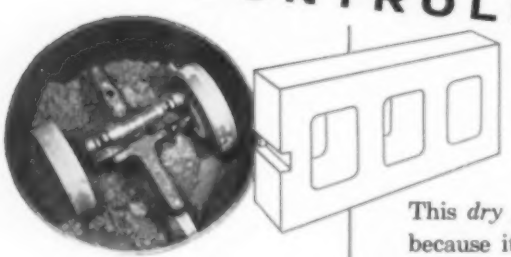
**HYSTER COMPANY**
INDUSTRIAL TRUCK DIVISION
P. O. Box 847 • Danville, Illinois



- No drying time needed
- Controlled density
- Controlled accuracy

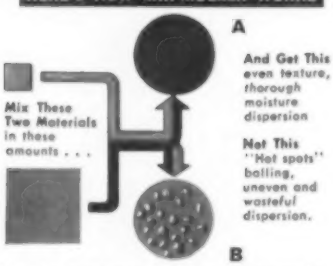
# CONTROLLED DISPERSION!

## The not-so-secret ingredient for clay block that sells on sight!



Exclusive kneading, smearing, spatulate action blends quickly, thoroughly. Agglomerates are broken up. Moisture is distributed evenly. Bottom discharge is fast, clean and automatic.

**HERE'S HOW MIX-MULLER WORKS**


A
Mix These Two Materials in these amounts . . .
And Get This even texture, thorough moisture dispersion
Not This "Hot spots" balling, uneven and wasteful dispersion.
B

**Here's how *controlled mulling* works:**

Diagram shows comparative results of blending a minute amount of one material with large amount of another material in (A) MIX-MULLER and (B) conventional mixer. Savings in raw material, reprocessing time and quality of finished product are the outstanding *rewards* of mulling your product.

This *dry press* block is quick and easy to produce and control because it's blended in a Simpson *Mix-Muller* at less than 5% moisture and then pressed out in a die. No drying time is needed. *Controlled dispersion* of moisture, clay and binders is the ingredient that insures uniform accuracy, uniform density and uniform strength. It's the ingredient which has made Mix-Muller the standard of the quality-conscious refractories industry for over twenty years.

Why settle for less? There's an acknowledged market for this tough, dense, accurate product of facing unit quality . . . one that offers promise of new, broader markets for you and a refreshing bargaining position for your salesmen.

**The Handbook on Mulling** provides full details on why more and more structural clay products are being produced in the Simpson Mix-Muller. Write:

**SIMPSON *MIX-MULLER*® DIVISION**

**National Engineering Company • 654 Machinery Hall Bldg., Chicago 6, Illinois**

**Circle Service No. 22**

# MATERIALS & EQUIPMENT IN THE NEWS

### Superlite Elevating Boom Unloader

A new Superlite elevating boom unloader, the Sky-Rider was introduced recently by this firm.

From ground level, the Sky-Rider, elevates its load, it has a 4000 lb capacity, up to 20 ft from ground level, or it will drop it a maximum of 18 ft from the truck bed. All operating mechanism is above the truck bed and initial installation can be made on any existing truck or trailer bed by local mechanics.

The Sky-Rider is sold as a complete package with all necessary equipment included. *Builders Equipment Co.*

**Circle Service No. 81**

### Air Vibrator

This firms new line of heavy-duty air vibrators for unloading covered railroad hopper cars has been recently announced. Two models are available. The 3" piston size is 14¼" long, weighs 68 lbs. and consumes 18 C.F.M. at a recommended air pressure of 40-60 P.S.I. The 4" piston size is 17½" long and weights 115 lbs., and consumes 29 C.F.M. at a recommended air pressure of 40-60 P.S.I.

A hydraulic clamp assembly is also available for attaching to cars not equipped with standard dove tail brackets. *National Air Vibrator Co.*

**Circle Service No. 82**

### Block Machine

Producing high quality block using a minimum of production workers. Can be done with Besser-Matic the companion machine to the automatic Vibrapac. Both machines installed in your plant enable you to produce high quality concrete masonry units with speed and economy. *The Besser Co.*

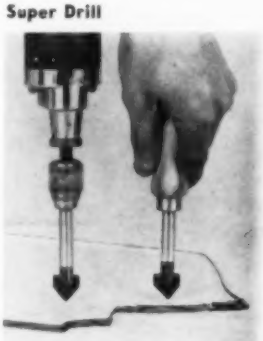
**Circle Service No. 84**

### Kiln Fans

No duct work with Garden City Fans. Wheel is inserted directly into furnace, oven, for kiln eliminating need for duct work. Mount in any position at any suitable location. Can be installed with or without housing, depending on efficiency desired. *Garden City Fan & Blower Co.*

**Circle Service No. 83**

### Super Drill

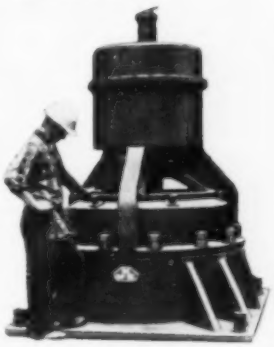


A new super drill which can be used for drilling perfect holes in glass, plastic, ceramic, concrete, tile, plaster, cinder block and hardened steel. It can be used as a hand tool or, without the handle, can be inserted into various power drills.

Sizes available: 1/32, 3/64, 1/16, 5/64, 3/32, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4 and 1". *Smith Engineering and Tool Co.*

**Circle Service No. 85**

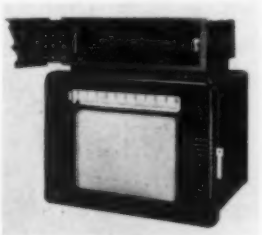
### Reduction Crusher



An all new, completely hydraulic reduction crusher, the Kone-O-Matic, has been announced. This new reduction crusher features a lower feed opening and requires less head room; the main shaft is top-supported by multiple hydraulic cylinders. *Kennedy Van Saun Mfg. & Engineering Corp.*

**Circle Service No. 86**

### 3-Dial Zero Recorder

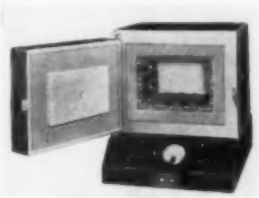


Not just another adjustable span and adjustable zero recorder, but a big step forward. No external calibrating means are necessary. The zero and span settings are calibrated dials; span accuracy is an amazing ½ of 1% of the set value, zero settings accurate to ½ of 1%. The span and zero settings can be read at a glance.

The modern swing-away chassis design permits easy access for quick service or maintenance. Control switches are adjustable over 100% of the range. The amplifier gain supplies over a 1,000,000 to 1 amplification. *Barber-Coleman Co.*

**Circle Service No. 87**

### Industrial Furnaces



According to the manufacturer infinite zone control switches on the firms line of industrial furnaces control the rate of temperature input; these control switches allow for complete and accurate equalization of vertical zone temperatures at any time-temperature curve. When the desired temperature level has been reached, between 500°F and 2300°F, it can be maintained to a plus or minus 3°F. dead zone or control band. *L and L Manufacturing Co.*

**Circle Service No. 88**

### Flat Track Shoe

A new, specially developed flat track shoe intended primarily for applications where track durability is at a premium has been announced for the 977H Traxcavator by this company.

The 18-inch track shoe is designed to operate more easily over railroad tracks, large pieces of slag or broken concrete frequently encountered in open hearth areas. It is strengthened by special hardening process and by using ribs on the underside of the shoe. *Caterpillar Tractor Co.*

**Circle Service No. 89**

### Fluxless Solder

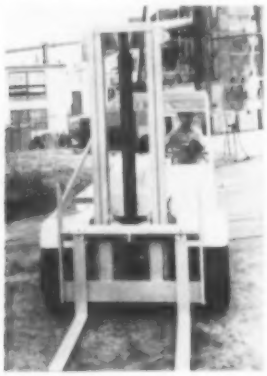
A new low temperature fluxless solder, Tin-A-Lum, which melts at extraordinary low temperatures, thus eliminating the danger of metal destruction under heat, has been developed

*(Please turn page)*

for use on aluminum and its alloys, zinc, tin, pewter, magnesium and other metals. *Metals For Industry, Inc.*

**Circle Service No. 90**

### Heavy Duty Fork Lift



Greatly improved vision is a safety feature claimed for this firms new series of heavy duty fork lift trucks. The company's design engineers achieved the new level of visibility by combining an off-center steering position with a new single-chain lift. *Towmotor Corp.*

**Circle Service No. 91**

### Pack Handle

This firm has announced a handle which may be applied to all awkward to handle packages such as a stack of brick. The handle is built in sizes to meet any of your requirements. *American Truck Body Co.*

**Circle Service No. 92**

### Screen Heaters

Hanco Electric screen heaters eliminate binding, increase tonnage, build greater profits while speeding production. *F. R. Hannon & Sons.*

**Circle Service No. 111**

### Hand Gloves

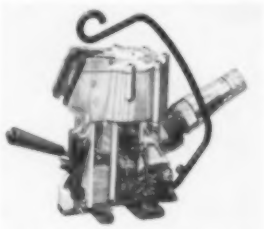
Increase the output of your men by protecting their hands with famous Tufhorse gloves, hand pads or mittens. Made of most durable leather available. *DesMoines Glove & Mfg. Co.*

**Circle Service No. 93**

### Strapping Tool

A portable all-power-operated combination strapping tool, has been announced by this firm.

Air power does all the work in this new tool—engages the feed wheel, tensions the strapping, applies the seal, severs the strap from the coil, and disengages the feed wheel.



The compact design, the short base—43/4 inches—and the elimination of tensioning and sealing handles permit this new tool to be used in cramped spaces, or small packages. *Signode Steel Strapping Co.*

**Circle Service No. 94**

### Material Conditioner

A new bulk-material conditioner has been developed by this firm to accurately mix desired amounts of liquids into a continuous stream of finely-divided or granular material. The conditioner, called a Verticone, handles a wide range of flow 150 lbs to 150 tons/hour on a continuous flow basis. *The Johnson-March Corp.*

**Circle Service No. 95**

### Stradle Trailer

The "Stradle Trailer" with its own hydraulic system, picks up the load—holds it secure while traveling—and unloads it at the job site. The complete load-haul-unload cycle is easily handled by just one man, the driver, and the models now in full production can efficiently haul up to 40,000 lb payloads. *Challenge-Cook Bros.*

**Circle Service No. 96**

### Refractory Block

Robinson Kiln Car and Floor Block are highly refractory, non-shrinking and non-spalling. They are available in a wide range of mixes and are designed to combat excessive thermal shock. *Robinson Clay Product Co.*

**Circle Service No. 97**

### High Speed Compressor

A high-speed compressor, about the size of a bowling ball, is now available from this firm.

Its exclusive design incorporates a two-pole motor that operates at approximately 3400 rpm at 60 cycles. Total weight is approximately 18 lbs. The new compressor is available in sizes of 1/12, 1/10, 1/8 and 1/6 hp. *Danfoss Inc.*

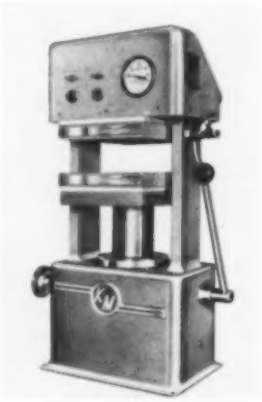
**Circle Service No. 98**

### Insulating Firebrick

Fuel costs reduced up to 23% in kilns lined with B&W Insulating Firebrick. They store and conduct less heat. Low heat storage permits quicker heating and cooling of the kiln, with less usable heat lost to the atmosphere. *The Babcock & Wilcox Co., Refr. Div.*

**Circle Service No. 99**

### Hydraulic Presses



This company has announced a new line of hydraulic presses which may be used for molding, laminating or testing. These presses are used in applications where controlled heating and pressure are required. Press sizes range from 20 tons to 75 tons with platen size varying from 8″ x 8″ to 19″ x 19″. Platens are constructed of fabricated steel with a cast aluminum interior to provide proper heat transfer characteristics, good overall strength, and the prevention of platen warping or pitting. *Kingsbacher Murphy Co.*

**Circle Service No. 100**

## NEW LITERATURE

**Mortar**—Bulletin #602, on high temperature air set mortar. *J. H. France Refractories Co.*

**Circle Service No. 101**

**Crane-Excavators**—Features 3/4-yd and 1-yd. crawler machines. *Koehring Co.*

**Circle Service No. 102**

**Basic Brick**—Discusses and give specifications on company's line of basic brick. *H. K. Porter, Inc.*

**Circle Service No. 103**

**Controllers**—56 page catalog covers complete line of Electronik controllers. *Minneapolis-Honeywell Regulator Co.*

**Circle Service No. 104**

**Handling Costs**—Describes how company's line of power gates helps to cut costs. *Young Spring & Wire Corp.*

**Circle Service No. 105**

**Temperature Regulating**—Catalog 360 Temperature regulating devices detailed. *American Instrument Co., Inc.*

**Circle Service No. 106**

**Motor Controller**—Design and operating features are described. *Allis-Chalmers.*

**Circle Service No. 107**

**Power Supply**—Data sheet describing regulated voltage power supply. *Leeds & Northrup Co.*

**Circle Service No. 108**

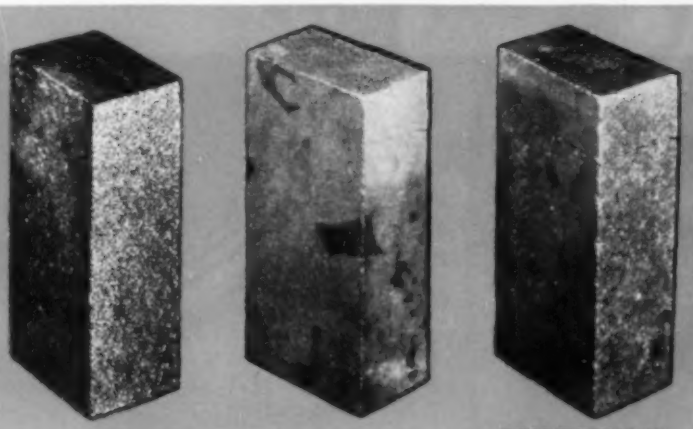
**Abrasives**—Abrasive products and related products for masonry trade. *The Carborundum Co.*

**Circle Service No. 109**

***Tower Crane***—Describes the Mark 1-50 tower crane. *Bucyrus-Erie Co.*

**Circle Service No. 110**

# INCREASED RESISTANCE TO SPALLING



VEGA HP STAR DASH CONVENTIONAL SILICA BRICK

Heated at rates which break up conventional silica brick, VEGA HP and STAR DASH show no evidence of cracking or spalling.

## DEMONSTRATED BY HARBISON-WALKER SILICA REFRACTORIES

The results of these tests indicate a most important advance in the properties of silica refractories. Here are two examples of actual performance.

**VEGA HP** In one open hearth shop, average roof life was increased from 100 to 250 heats by using VEGA HP. The optimum combination of highest refractoriness and spalling resistance resulted in maximum service life.

**STAR DASH** In a steel foundry electric furnace roof, STAR DASH was used in a lining that lasted 152 heats compared with a previous average roof life of from 75 to 100 heats. This increase in service life is attributed to improved spalling resistance.

The high spalling resistance of these specialized brands suggests other uses—such as in glass plants, tunnel kilns, copper anode furnaces, acid-operated iron cupolas, carbon baking furnaces, heating furnace roofs, and soaking pits. Write for details.

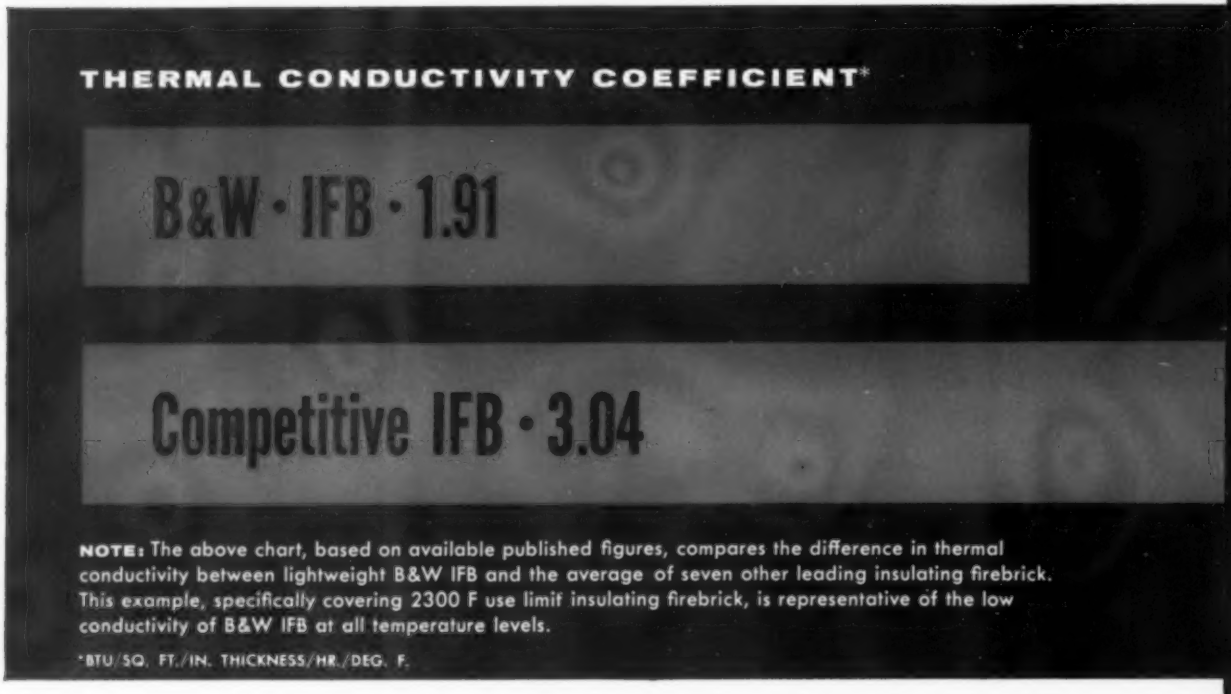
**HARBISON-WALKER REFRACTORIES CO.**
**AND SUBSIDIARIES**
**GENERAL OFFICES: PITTSBURGH 22, PENNA.**
*World's Most Complete Refractories Service*

HW-61-4

Circle Service No. 23

Another *plus* of Lightweight B&W Insulating Firebrick

# LOWER THERMAL CONDUCTIVITY means




**NOTE:** The above chart, based on available published figures, compares the difference in thermal conductivity between lightweight B&W IFB and the average of seven other leading insulating firebrick. This example, specifically covering 2300 F use limit insulating firebrick, is representative of the low conductivity of B&W IFB at all temperature levels.

*BTU/SQ. FT./IN. THICKNESS/HR./DEG. F.

All insulating firebrick are not the same. Published figures show wide variations in *all* of the important properties among the leading brands of IFB.

Take thermal conductivity. This important property affects fuel costs, temperature control and the speed with which a furnace heats and cools. Thermal conductivities range from a B&W low of 1.91 to a high of 3.47 for a competitive IFB—*almost a 100% difference in wasted heat and fuel costs.*

You are paying for insulating firebrick . . . make sure you get *all* the benefits. B&W—the originator of IFB—manufactures a full line of IFB with an experience-proved balance of light weight, high insulating value, high strength and long life.

For complete information on B&W Insulating Firebrick, write for Catalog R-2-H to The Babcock & Wilcox Company, Refractories Division, 161 East 42nd Street, New York 17, N. Y.

Circle Service No. 24

# LOWER FUEL COSTS

*the payoff*

**• 17% reduction in fuel cost • 13% increased output**

Cost and operating figures, based on carefully weighed tests, have conclusively proved the superiority of B&W Insulating Firebrick to Wadsworth Brick and Tile Company, Wadsworth, Ohio. This B&W Insulating Firebrick lined kiln is providing 17% lower fuel costs and 13% increased output. This is just one of many proofs in our files that "there is an important difference in insulating firebrick."

R-661

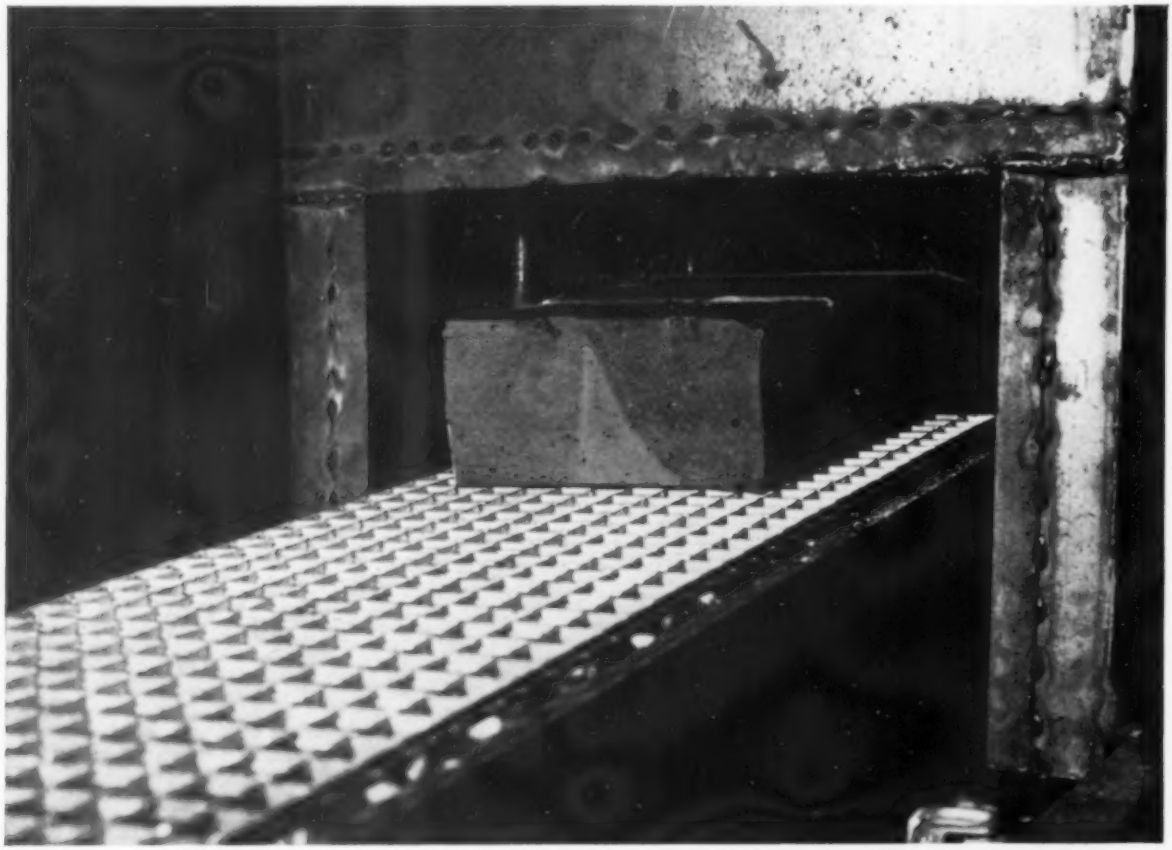
**B&W**

THE BABCOCK & WILCOX COMPANY

***REFRACTORIES DIVISION***

**NEWS from Dow Corning**

# The Finishing Touch



## Easy, Low Cost Way to Give Your Brick New Sales Appeal

Here's a treatment that protects the original beauty of your brick — *builds in* some excellent new selling features. It's Silaneal®, a sodium siliconate treatment that makes brick water-repellent . . . minimizes efflorescence, keeps dirt on the surface where it rain-washes away. Result: Your brick stays clean in storage . . . beautiful during and after construction. And most important, your customers stay happy with your product!

### *Small Investment — Big Return*

Silaneal treatment is inexpensive from every standpoint including equipment, labor and material cost. Most present users find Silaneal returns more than it costs — in fewer customer complaints, in reduced yard staining, lower selling costs and expanded markets.

Spray equipment for applying Silaneal specially designed by Dow Corning.

SILANEAL®
keeps brick clean

**Dow Corning**

Circle Service No. 25

# ...Silaneal keeps brick beautiful!

### *Structural Strength Affected?*

No! And Silaneal is the *only* brick treating material proved safe in both field construction and SCPRF-prescribed wall tests. Photo at right shows wall test unit at work. These tests have proved that treating the bedding surfaces of brick with suction rates above 20 grams per minute improves wall strength, reduces rain penetration, and eliminates the need for wetting brick before lay-up.

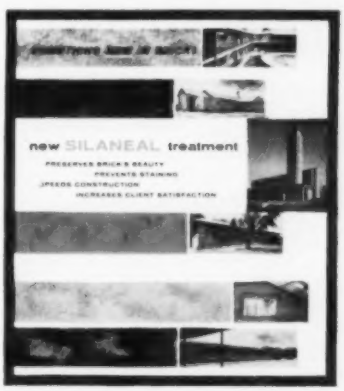
### *Do ALL Brick Need Silaneal?*

In accordance with the recommendations of the SCPI, brick having an initial rate of absorption or suction greater than 20 grams per minute should have the suction reduced to 20 grams or less for maximum bond strength and minimum water penetration. Brick with a suction above 20 grams should have *all* surfaces treated with Silaneal. Brick having a suction *below* 20 grams should be treated on exposed faces but not on *bedding* surfaces.

Some low suction brick do not need Silaneal. Dow Corning repeatedly reminds architects and specification writers of this fact, with this statement: "There are several brick manufacturers who produce brick having low suction which already perform similar to a Silaneal treated brick. Little improvement in efflorescence control and reduction in dirt pickup could be accomplished by treating this type of brick with Silaneal. Silaneal treatment would not improve the laying properties of this type of brick."

### *Here's How Dow Corning Is Building Demand For Brick Treated With Silaneal*

An industry-wide advertising and sales promotion program is carrying the Silaneal story to architects, builders, contractors and owners through a continuing series of big 2-page color advertisements in such leading publications as *Architectural Record, Progressive Architecture,* and *Building Construction Illustrated.*




***Special sales aids for you:*** A full color descriptive movie is available at no charge for showing to your own personnel and prospects. Imprinted Silaneal literature and mailing pieces, and special "tell 'n sell" identification stickers for your sample panels and letterheads round out a promotion program that's creating a great and growing demand for *your* brick treated with Silaneal.

***Get full information about Silaneal now. Phone or write today.***

**CORPORATION** MIDLAND, MICHIGAN

SUSTAINING ASSOCIATE SCPI

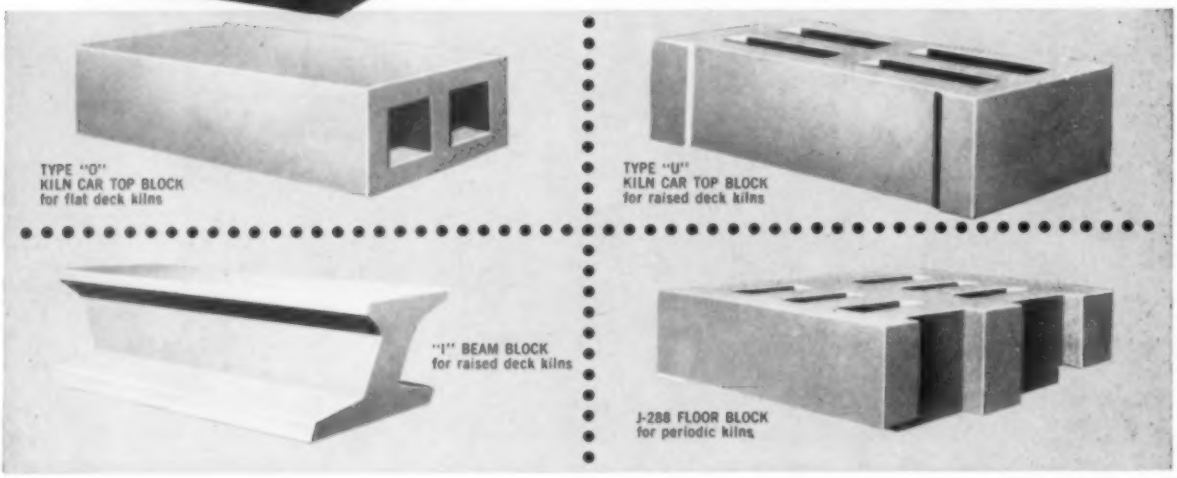
# ROBINSON REFRACTORIES

## *Serve You Best!*

**New from Robinson!**
High-Performance, Low-Maintenance
**KILN CAR and FLOOR BLOCK**

It always pays to specify the complete line of Robinson Refractories. Take advantage of modern laboratory production methods, such as instrument-controlled firing, rigid quality control and expert engineering service. The Robinson name is your guarantee of quality. And a distribution system, unsurpassed, makes a complete line of refractories available to you at all times, through fifteen factory branches, in addition to Robinson dealers, strategically located throughout the Northeastern section of the nation.

*Write for illustrated Complete-Line Catalog*


TYPE "O" KILN CAR TOP BLOCK for flat deck kilns
TYPE "U" KILN CAR TOP BLOCK for raised deck kilns
"I" BEAM BLOCK for raised deck kilns
J-288 FLOOR BLOCK for periodic kilns

Robinson Kiln Car and Floor Block are highly refractory . . . non-shrinking and non-spalling . . . have unsurpassed load-bearing properties. Available in a wide range of mixes, including two revolutionary research-developed formulas, designed to combat excessive thermal shock — THERMIX R-119 and R-127. Call the Robinson Branch nearest you. Your Robinson Representative will be glad to help you select the mix best suited to your specific application.

### COMPLETE LINE FOR ALL YOUR REFRACTORIES NEEDS...

**Fire Brick • Cupola Block • Ladle Lining Castable Refractories • Plastic Fire Brick Acid-Proof Cement • High-Temperature Bonding Mortar • Kiln Floor Block • Kiln Car Top Block**

THE ROBINSON CLAY PRODUCT CO.
ESTABLISHED 1856
AKRON • OHIO

OVER 100 YEARS OF Quality and Service
EST. 1856

### 15 ROBINSON BRANCHES TO SERVE YOU BEST

**Akron, Ohio • Albany, N. Y. • Baltimore, Md. • Caldwell Township, N. J. • Boston, Mass. • Buffalo, N. Y. • Chicago, Ill. East Hartford, Conn. • Indianapolis, Ind. • New York, N. Y. (Jamaica, L. I.) • Philadelphia, Pa. (Pottstown, Pa.) Rochester, N. Y. • Syracuse, N. Y. • Toronto, Ontario • Yonkers (Westchester County,) N. Y.**

**FACTORIES: Dover, Ohio—Strasburg, Ohio**

Circle Service No. 26

# SUPERLITE Elevating SKY-RIDER BOOM UNLOADER

- Designed to solve difficult loading and unloading problems.
- Elevates 55° from horizontal position. Raises load 20-ft from ground level. 18-ft drop from truck bed.
- Fully factory assembled and tested before shipment.
- Self powered—all operating mechanism above truck bed. Easily accessible for fast maintenance servicing.
- Highly versatile—elevates, rotates, trolley travel, cable lift and drop.
- 4000-lb. capacity at end of 18-ft tapered beam; built-in safety overload factor.
- Pedestal section takes only 6-in. of truck bed.

This SUPERLITE SKY-RIDER Elevating Boom Type Unloader is in service at Alton (Ill.) Brick Co. It's designed to meet the toughest loading and unloading situations—up, down, in, out, all around, over walls, above or below ground level. It circumvents obstructions, provides easy operation in tight quarters. Like all SUPERLITES, it gives fast gentle handling at low, low cost. You can depend on SUPERLITE for a high quality product at a volume production price.

***Lowest First Cost!***
***Lowest Operating Cost!***

WRITE OR CALL

***Why Don't You Enjoy***
**Fast—Effortless—Economical—SUPERLITE Unloading?**

## BUILDERS EQUIPMENT COMPANY

**P.O. BOX 7143**
**PHOENIX, ARIZONA**
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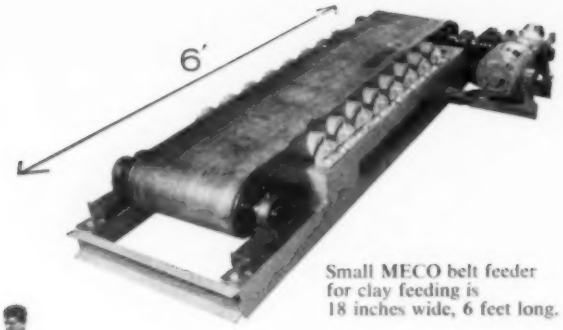
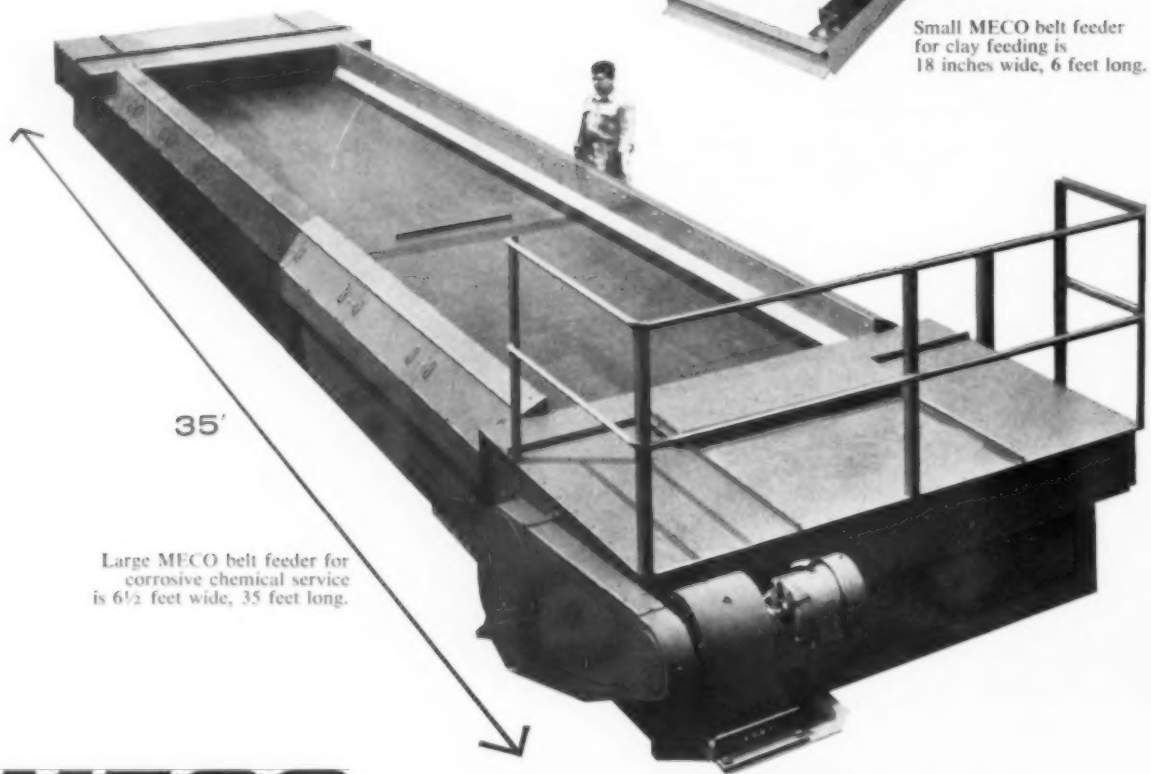
Circle Service No. 27




Small MECO belt feeder for clay feeding is 18 inches wide, 6 feet long.




Large MECO belt feeder for corrosive chemical service is 6½ feet wide, 35 feet long.

# MECO engineered belt feeders

## precise feeding for optimum profits

Of all the ways to feed bulk material, none offers the precise control plus other economic advantages of a MECO engineered belt feeder. It's the new equipment that progressive plants are investigating—and buying—to make all other equipment work at the most profitable capacity.

First, MECO belt feeders can offer infinitely variable speed control, even while operating. Feed rates can be adjusted automatically, or manually if you desire, from a few inches to many feet per minute.

Second, MECO belt feeders let you move materials direct from live bottom bins and hoppers. Because the opening can be as large as desired, there are no bridging problems. You can feed from the tallest silo—or if you are planning new construction, you can specify the largest possible storage facilities.

Third, MECO belt feeders reduce spillage and product contamination, improve housekeeping. Moreover, their rugged, heavy duty construction and simplified design cut maintenance to the bone.

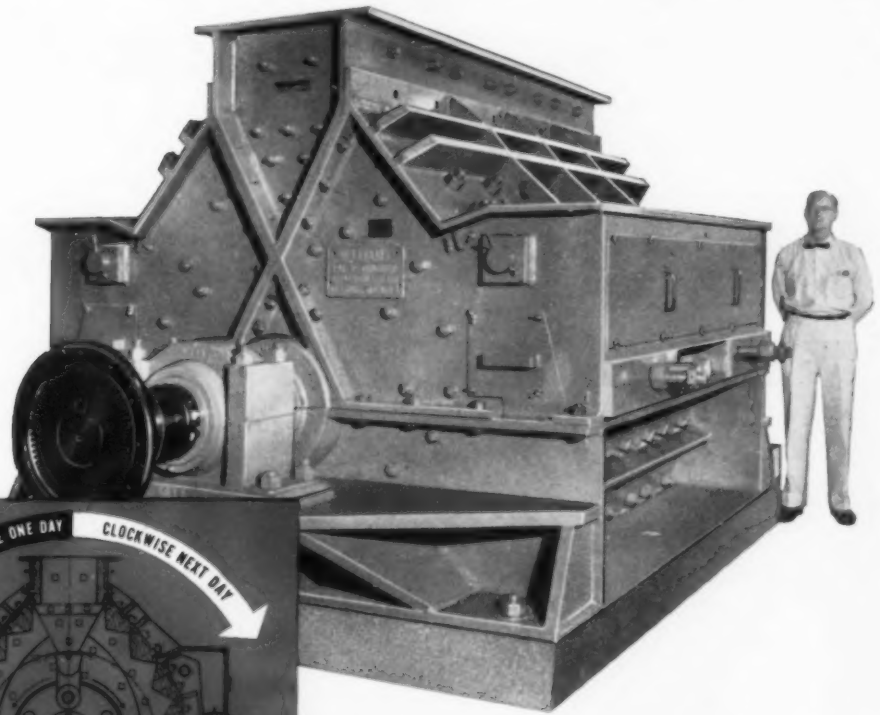
MECO makes every type of feeder—apron, plate, disc, and belt—for an impartial recommendation, you can trust MECO's 50 years of experience. Request Bulletin 601 from The Manufacturers Equipment Company, 218 Madeira Avenue, Dayton, Ohio.

**MECO**

*ENGINEERED CLAYWORKING AND HANDLING EQUIPMENT*

Circle Service No. 28

# More efficient CRUSHING AT LOWEST COST for labor, power and upkeep with WILLIAMS REVERSIBLE IMPACTOR



**REVERSIBLE ROTATION** prolongs parts life without manual adjustment. A simple reversing switch on motor does it.

**INTERIOR VIEW** of small Impactor shows typical rugged hammers, impact blocks and liners made of manganese steel and other alloys. Rotor removable without disturbing feed or other mechanisms.

For secondary crushing, the economy and high production of a Williams Reversible Impactor is unequalled, whether raw material is hard and abrasive or soft and friable. Precision control of specified top-size is easy, usually in a closed circuit system, from a coarse 2" with minimum fines, down to 35 mesh or finer.

The Impactor has no grates. Material fed into the mill is reduced to proper size while rebounding between the whirling hammers and impact blocks, until discharged from bottom opening. Grinding or rubbing action is eliminated—power, replacement parts and downtime are reduced to a minimum. No fine adjustments need be maintained.

*Reversible rotation* is a prime feature of the Williams. So is *Wide Open Accessibility* to interior. So are the *Interchangeable Impact Blocks* to balance wear. So are the many other exclusives that hold cost-per-ton to the very lowest. There is a size and model for your exact needs. *Write for catalog.*

**WILLIAMS PATENT CRUSHER AND PULVERIZER CO.**
2709 N. Broadway • St. Louis 6, Mo.

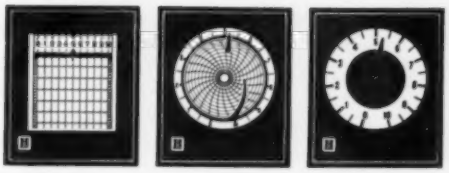
**WILLIAMS**
CRUSHERS GRINDERS SHREDDERS
*Oldest and largest manufacturers of hammer mills in the world*

Circle Service No. 29

# *the advanced, all-new* ElectroniK 17

**NO SLIDEWIRE, NO SLIDEWIRE PROBLEMS.** The unique STRANDUCER rebalancing element replaces the conventional slidewire. It works on the strain gage principle and consists of four looped wire strands which form the resistance legs of a Wheatstone bridge. Both STRANDUCER and pen carriages are linked to the potentiometer balancing motor. A change in electrical input causes the balancing motor to change the tension—and electrical resistance—of the STRANDUCER, to reposition the instrument pen or pointer. The STRANDUCER is unaffected by corrosive atmospheres and has no contactors. It has unusually long life and infinite resolution and is unaffected when the instrument operates in ambient temperatures up to 130° F.

**Circle Service No. 30**



*will save you more time, trouble, dollars, and maintenance than any other potentiometer on the market today!*

- New *STRANDUCER** replaces slidewire
- New control system with plug-in units
- New modular construction
- New economy

. . . and other pace-setting features

*ElectroniK 17* potentiometers are completely new Honeywell recording and control instruments, compact enough to fit standard 19-inch relay racks. They perform reliably, have $\pm 0.25\%$ calibrated accuracy and incorporate new design advances which make them the easiest of all potentiometers to operate, convert, and maintain.

You can get *ElectroniK 17* instruments as strip or circular chart recorders or circular scale indicators. You can get electric contact control with up to 8 contacts. Control units are of plug-in type.

With *ElectroniK 17* potentiometers, you not only get uninterrupted performance, but also save money in initial cost, operating expense, and maintenance. You will find this new potentiometer far more economical to operate than any other available today.

For complete information on the *ElectroniK 17*, call your nearby Honeywell field engineer or write to MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa. — In Canada, write Honeywell Controls, Ltd., Toronto 17, Ontario.

**Honeywell**

First in Control

SINCE 1885

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**MODULAR CONSTRUCTION, PLUG-IN COMPONENTS**

*make ElectroniK 17 easiest of all potentiometers to operate, convert, maintain.*

**INTERCHANGEABLE DISPLAY MODULE.** You can switch easily from strip to circular chart, to circular scale operation . . . reduce your spare parts inventory because you can stock a single spare module for several instruments.

**FRONT ADJUSTMENTS.** You adjust damping and gain from the front of the instrument, using only a screwdriver.

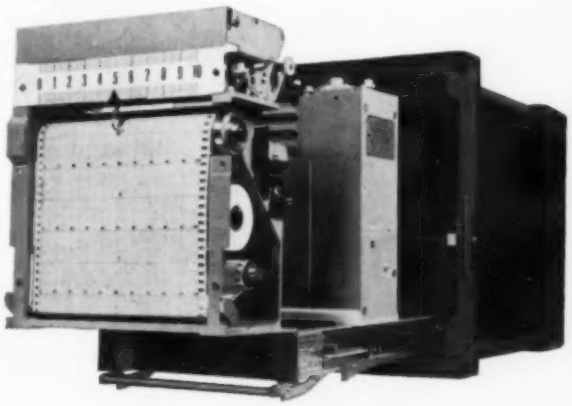
**QUICK-CHANGE DRIVE GEARS.** You can change chart speed to ½ or 2 times basic speed in a matter of seconds by replacing quick-change drive gears. Standard chart speeds: 1, 2, 6, 10, or 60 inches per hour.

**EASY RANGE AND ACTUATION CHANGE.** Simply change range card attached to actuation board. Universal reference junction compensator serves *all* types of thermocouples; you can quickly remove it to convert to some actuation other than thermocouple. Filter network rejects loop stray signals.

**PULL-OUT CHASSIS AND EXTERNAL TERMINAL BOARD.** You can pull out the chassis to the service position without tools and without interrupting the operation of the instrument, or completely remove it.

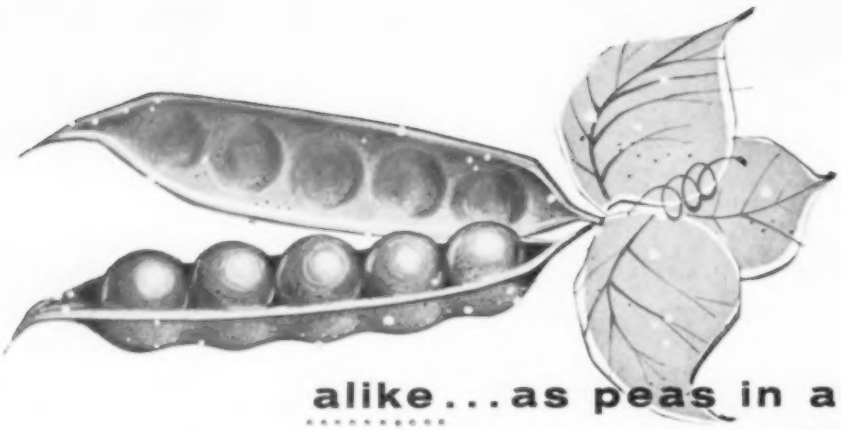
**COMPACT EASILY-REMOVED TRANSISTOR AMPLIFIER.** With only a screwdriver you can remove the amplifier for servicing.

**NO STANDARDIZATION.** Zener diode constant current unit does away with need for battery and standardizing mechanisms.

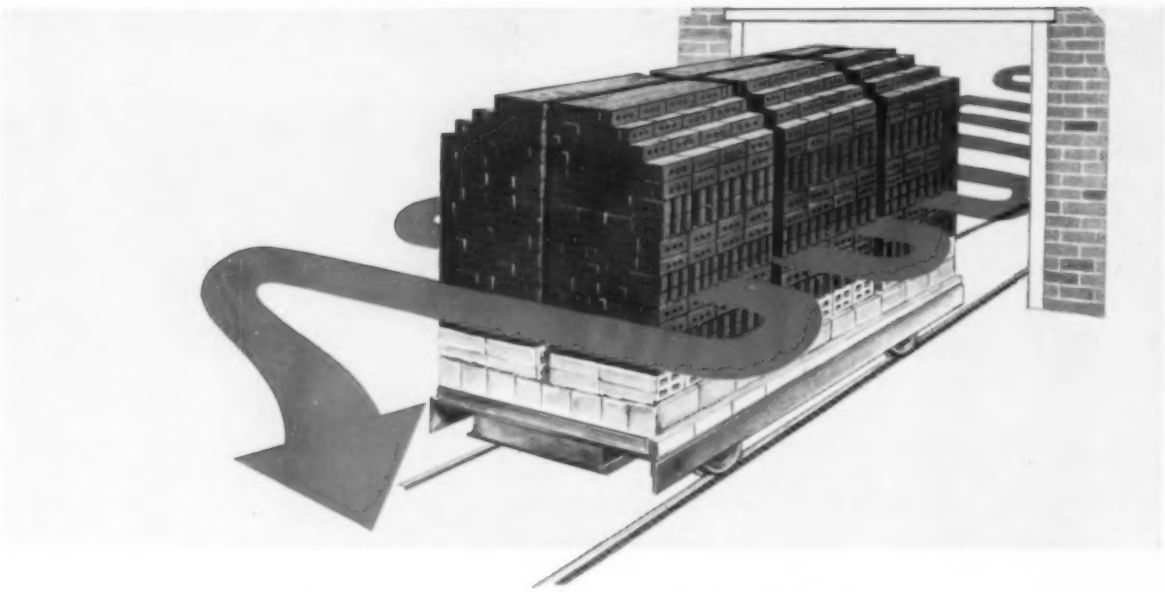


*Trademark—Minneapolis-Honeywell Reg. Co.

**HONEYWELL INTERNATIONAL** Sales and Service offices in all principal cities of the world. Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.



## alike...as peas in a pod!



## Miller Cros-Flo Tunnel Kilns Produce "Uniform," First Quality Ware

Miller proven Cros-Flo principles solve the problem of uniform, select brick production. Scientifically placed fans and baffles force air and gases uniformly throughout setting.

Miller Cros-Flo Kiln operators report excellent production results . . . uniform first quality ware . . . day after day.

Miller Cros-Flo Tunnel Kilns use all usable heat in a continuous drying, firing and cooling operation . . . unbelievably low fuel cost per 1000 brick.

**LOOK TO MILLER FOR THE FINEST**

- Kiln Cars
- Hammermill Crushers
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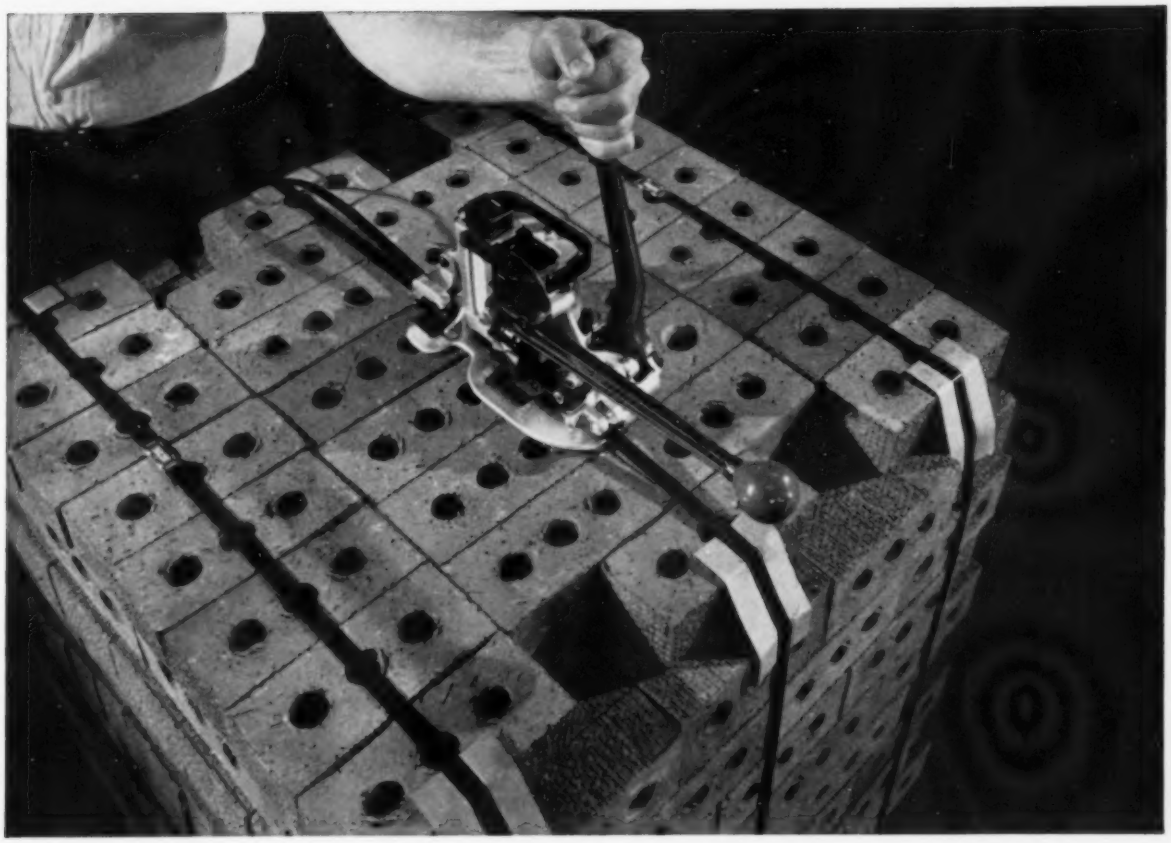


# Usable strapping strength... how to get the most at least cost

As you probably know, the strapping of brick poses one of the most severe of all tests of strapping strength, toughness, and resistance to corrosion. Your product is heavy, has no "give", and packaged brick is exposed to weather. Yet tight, secure strapping is essential to good arrival condition.

Signode knows these things, too. So... we invite you to do three things to get the most usable strapping strength at least cost:

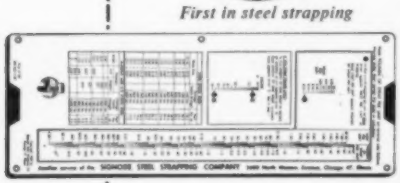
1. Try for yourself the strength and toughness of the Signode Magnus steel strapping made especially for the brick industry. We believe you'll find the demonstration surprising—at least interesting and worth your while.
2. Let the Signode man discuss ways you can use the strength of Signode strapping to best advantage in your own operations. They'll be practical ways. Remember he is experienced, and can call on Signode's years of accumulated experience in brick packaging methods.
3. Send for our new Steel Strapping Calculator. It helps you buy steel strapping at least cost according to your needs, and shows new strength figures for Signode steel strapping.

SIGNODE

*First in steel strapping*

## SIGNODE STEEL STRAPPING CO.

2629 N. Western Avenue, Chicago 47, Illinois



☐ Please arrange a demonstration for me of the strength of the strapping Signode recommends for packaged brick.

☐ Please send me without charge or obligation the new Signode Steel Strapping Calculator.

name_____

company_____

address_____

city_____ zone_____ state_____

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide

In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

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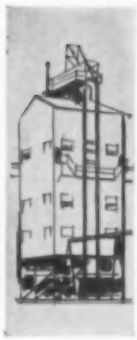
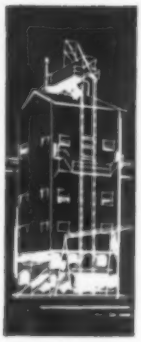
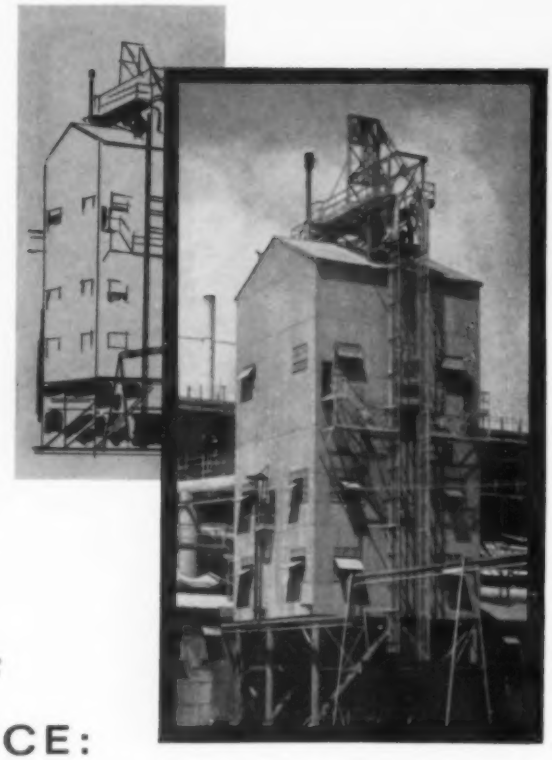
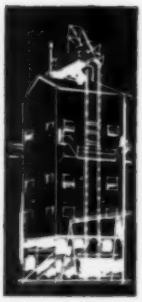
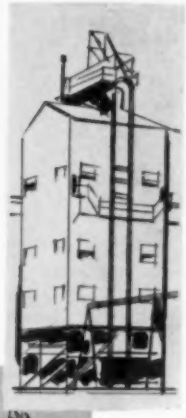
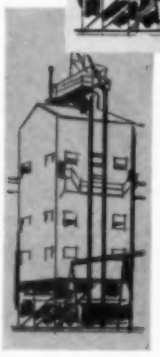












PROOF OF PERFORMANCE:

# 7 REPEAT ORDERS

## FOR WELLMAN-GALUSHA GAS PRODUCERS

Seven separate repeat orders since 1950 from Glen-Gery Shale Brick Corporation, Reading, Pa., well-known manufacturers of superior building brick, prove Wellman-Galusha Gas Producers have what it takes in reliable performance. Add versatility and economy and you have performance PLUS.

**HERE'S WHAT YOU GET**

**High Efficiency**—Fuel conversion efficiency in excess of 90% can be obtained.

**Wide Operating Range**—Instant, automatic, operating rate can be as low as 10% of rated capacity of unit.

**Uniform Heat Distribution**—About 50% of producer gas is nitrogen which creates a rapid turbulence of the products of combustion within furnace or kiln. This eliminates the harsh, concentrated heat experienced at burner and furnace zones with other fuels and results in better product control.

**Low Operating Costs**—Simplicity of design incorporates gravity fuel feed (no moving parts) automatic continuous ash ejection and gravity ash dumping, plus full automatic operational controls resulting in record high gas quality and yield from bituminous coal, anthracite or coke. No gas holder is required.

**WRITE OR CALL US TODAY—**

On request our representative will call and, of course, there is no obligation.

THE McDOWELL WELLMAN COMPANIES

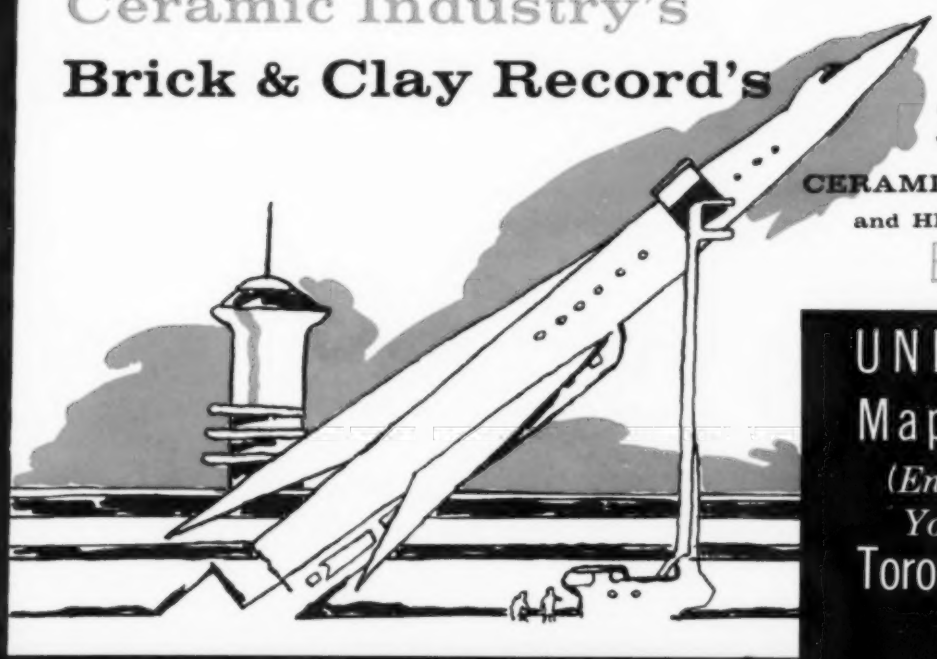
113 ST. CLAIR AVE., N.E. • CLEVELAND 14, OHIO • U.S.A.

Circle Service No. 33

*Announcing . . .*

Ceramic Industry's

**Brick & Clay Record's**



3rd Annual

CERAMICS FOR THE FUTURE

and HEAVY CLAY PRODUCTS

EXHIBITION

UNION STATION

Maple Room APRIL 23-26

*(Entrance thru Royal York Hotel Tunnel)*

Toronto, Ont., Canada

# CERAMICS and CLAY PRODUCTS...*Genies o*

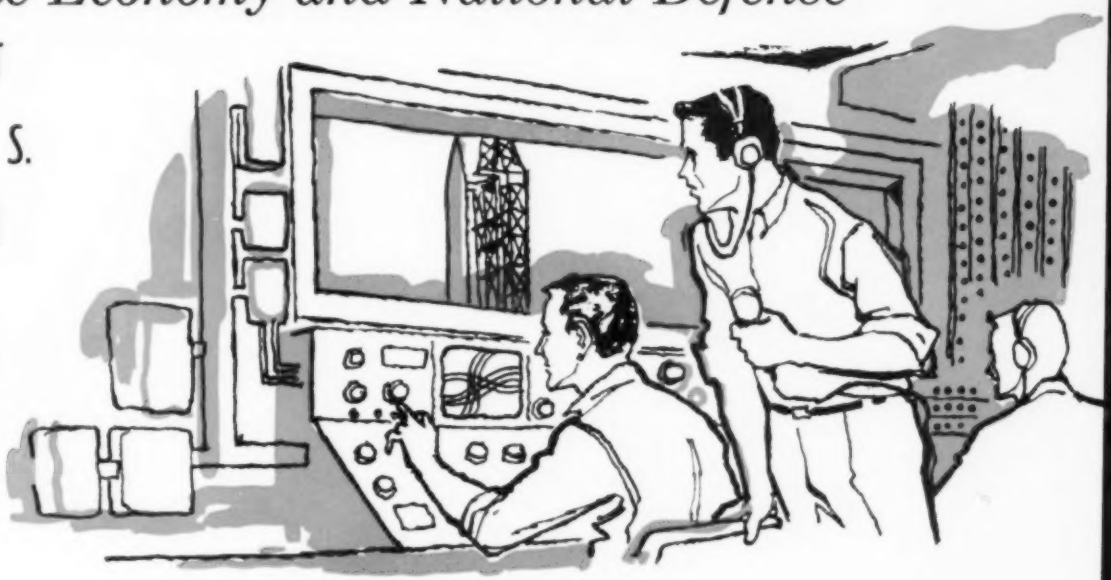
What are the latest trends in Ceramics, Heavy Clay Products? . . . Trends that cannot be talked about openly yet, trends that will mold the future of the industries. You will find many of the answers at CERAMIC INDUSTRY'S—BRICK & CLAY RECORD'S third annual "Ceramics for the Future" and Heavy Clay Products exhibition to be held during the A.C.S. Convention at the Maple Room, in Toronto's Union Station (just through the tunnel from the Royal York Hotel or across the street).

Featured will be manned displays and exhibits of new products, methods and techniques currently in use or under experimentation in the ceramics and clay products fields. Here is an opportunity to meet the experts and see the latest in the field. Don't miss it!

*Peacetime Economy and National Defense*

AN ADJUNCT
TO THE A. C. S.
CONVENTION

YOU WON'T
WANT TO
MISS!



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Ceramic Industry / **Brick & Clay Record**

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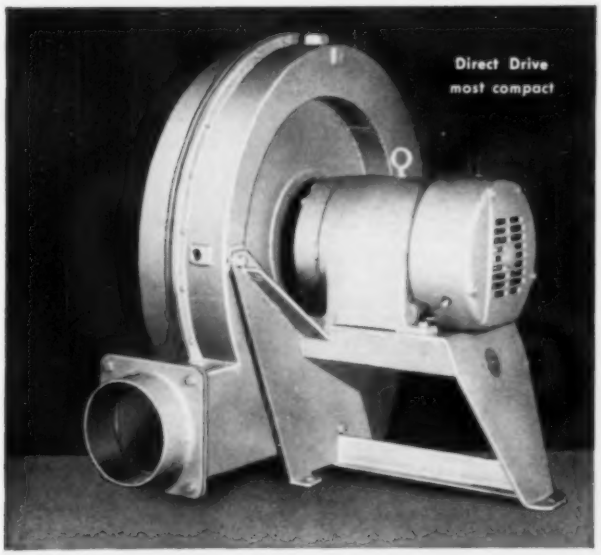


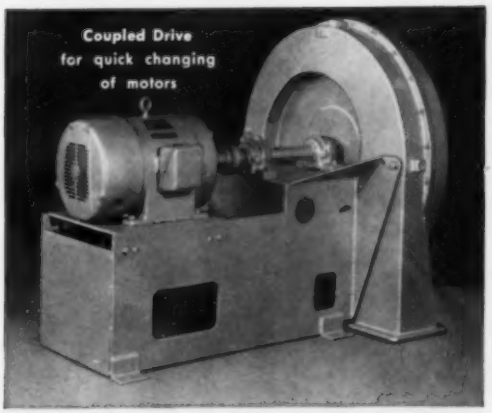


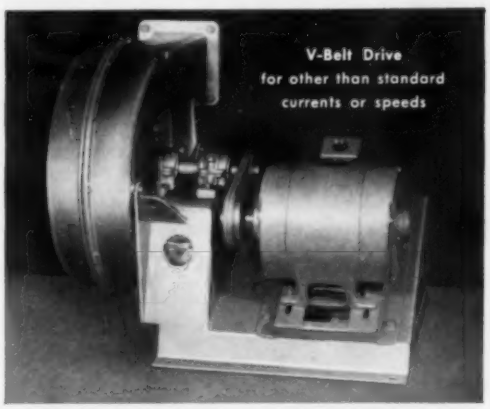


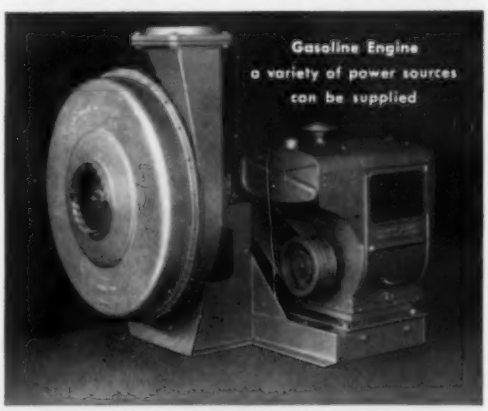


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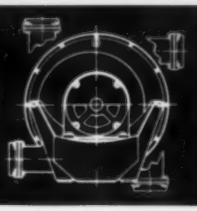

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# Industry Girds for the Future

News coming into the office gives every indication of the heavy clay products industry getting ready for a spurt in business.

Recent word from a group of mason contractors justifies this optimism. This group came to the conclusion that there would be a shortage of masons by the middle of July. It means that there will be a considerable amount of masonry work done in this country and it will consume clay products.

With the industry's advertising and promotion program in full swing, the clay industry should get more than its share of the building program this year.

Research, too, is having its effect on the over-all picture because some of the new ideas are fully responsible for the share that this industry is getting.

Hardly anyone in the industry is standing still. Most operators are putting their plants into shape for the rush. We have word of a rather large number of plants remodeling their grinding and clay preparation areas. Others are either building or planning on building additional kiln capacity. The clay pits are getting attention. Packaging is on the agenda for almost every plant. As a matter of fact, in our recent survey of the industry, 62% of the heavy clay plants indicated some kind of plant change or addition. The expenditures ranged from $56,000 to $1,350,000

The news includes the purchase of plants by larger manufacturers, consolidations, building of entirely new plants. What pleases us quite a bit are the plans for the building of plants to make lightweight clay block. This has been a project close to the editors of BRICK & CLAY RECORD and one which we see as a tremendous possibility for this industry.

The good news does not end with the structural clay industry, but is likewise good from the clay pipe industry and the refractories industry.

The whole picture is very encouraging. Whether we capitalize on our optimism now or later this year or even after this year, the investments made in the plants today will pay off handsomely. The winter lull and the construction lag are about over.

J. J. Sree

Executive Editor

# NEWS OF THE INDUSTRY

### General Shale Products Expands

The General Shale Products Corp., Johnson City, Ky., has formed a new subsidiary, General Shale Products of Indiana Inc., and a distribution yard has been opened at Indianapolis. GSPC has brick plants in Johnson City, Kingsport, Knoxville, Chattanooga, Louisville, Richlands, Ky., and Marion, Va., producing over 270,000,000 brick annually.

### Mississippi Industries Buys Atlas Tile and Brick Company

Mississippi Industries, which recently leased the facilities of the Web-Cote Roof Manufacturing Co., Meridian, Miss., has acquired the Atlas Tile and Brick Co., Shuqualak, Miss.

Mississippi Industries president Warren Hood said that the Atlas plant is a $750,000 operation. The plant employs more than 50 workers and has a daily capacity of 50,000 buff brick.

### A-M Wins Rezoning OK

An application by the American-Marietta Co., for rezoning of a 30-acre tract southeast of Raytown, Kans., was recently approved by the city plan commission.

The commission was told that the United Brick Division of the American-Marietta plans a $1,500,000 expansion of its plant located on this tract.

### Scholarship Offered by Two Sewer Pipe Firms

The Cannelton Sewer Pipe Co., Cannelton, Ind., and its affiliate, the Owensboro Sewer Pipe Co., Owensboro, Ky., are offering a scholarship in either ceramic or mechanical engineering. The scholarship, worth $600 a year for four years, will be available to high school students in Perry County, Ind., and Davis County, Ky., and to sons of employees. The winner may study ceramic engineering at the University of Illinois, or mechanical engineering at Purdue University or the University of Kentucky.

### Virginia Brick Association Re-Elects Rawlings President

John B. Rawlings was re-elected president at the annual meeting of the Virginia Brick Association, Inc., in Roanoke Va. Rawlings is secretary-treasurer of the Brick and Tile Corp., Lawrenceville, Va.

### Maloney Re-Elected President Of Clay Flue Lining Institute

Joseph L. Maloney, eastern district sales manager for the Natco Corp., Pittsburgh, Pa., has been re-elected president of the Clay Flue Lining Institute, an association of clay flue lining manufacturers, with plants and branches located throughout the United States and Canada.

### Vitrified Products Buys New York Pipe Distributor

American Vitrified Products Co., Cleveland, O., announced recently the acquisition of the Lehman Sewer Pipe Co., New York, N. Y.

The transaction price was not announced, but it was reported that the deal involved stock and cash.

### Fred A. Palmer Guest Speaker At Logan Clay Sales Conference

Fred A. Palmer, nationally-known speaker and sales consultant, was guest speaker at the annual sales conference held recently by the Logan Clay Products Co., Logan, Ohio, at its Logan offices.

Logan Clay was host to its company-wide sales organization, includ-

## Largest Vitrified Clay Pipe Moved

The largest vitrified clay pipe with a compression joint in the world was recently installed in Orange County, Calif., by John A. Artukovitch Sons, Inc. The pipe, manufactured by the Gladding, McBean & Co., is 39" in diameter and five feet in length. Previously, 36" was the largest diameter available in a clay pipe with a factory-made compression joint.

The pipe is being used in a major trunk line which is part of the program of the Orange County Sanitation District to meet the sewage needs to the year 2000 for the fast growing area.

ing its Graff-Kittanning Division, Worthington, Pa. Speakers at the two-day meting, in addition to Palmer, included: A. G. Cochran, president, Clay Sewer Pipe Association, Columbus, Ohio; Sherwood Borland, chief engineer, CSPA; Robert R. Murphy, district representative, Brown & Bigelow, Lancaster, Ohio; and Robert Jack, secretary, Ohio Building Material Dealers Association, Columbus, Ohio.

The agenda during the two day sales conference included tours of Logan's new plant, plus discussions on new technical advancements in the clay industry, new developments, standardization, advertising and promotion, codes, specifications, and marketing.

### Athens Tile and Pottery Names Miller President

M. K. Miller Jr., has been named to the presidency of Athens Tile and Pottery Corp., Athens, Tex., upon the retirement of his father. The corporation manufactures unglazed flower pots for florists and nurseries.

### Paxton Brick Celebrates 50th Anniversary

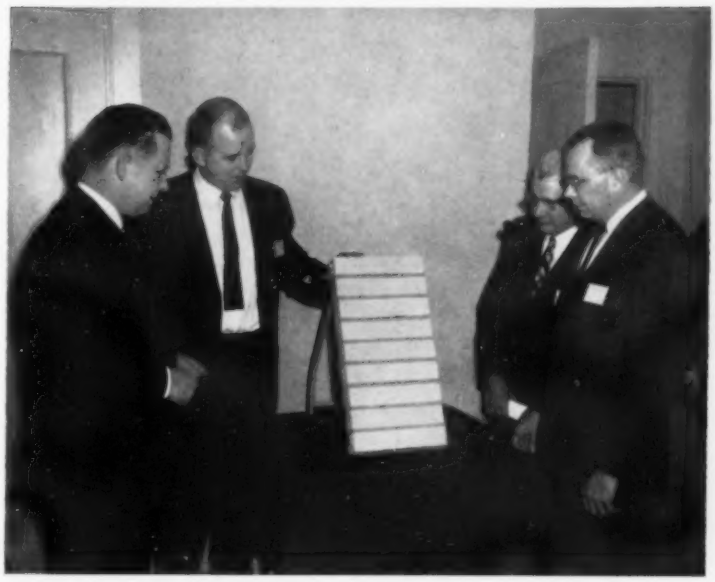
The Paxton Brick Co., Paxtonville, Pa., is celebrating their 50th anniversary during 1961. The firm manufactures a complete line of brick, including stiff mud sanded colonials, barks, matt texture, smooth face as well as Norman size units.

### Atlanta Man Wins National Brick And Tile Competition

John Segner, vice president of Robert K. Thrower, Inc. ("The Brick Man") Atlanta, Ga., was named winner of a sales training competition among brick and tile salesmen of the National Association of Distributors and Dealers of Structural Clay Products at the group's recent annual meeting in Hollywood, Fla. NADD is the organization of leading brick and tile specialists throughout the U. S. and Canada.

Segner won the coveted Harry M. Spaulding Memorial Scholarship by taking top honors in a competitive examination of product knowledge. The award consists of full tuition to a five week sales engineering course for brick and tile specialists, conducted in Washington, D. C. at the Structural Clay Products Institute.

## Discuss SCR Building Panel Techniques



Discussing the new approach techniques available with the SCR building panel are: (left to right) A. C. Frisk, president of Goodwin Companies, Des Moines, Ia. and chairman of Structural Clay Products Research Foundation, Geneva, Ill.; John Hart, architect with the firm of Brooks-Borg, Des Moines, Ia.; Herbert Arthur, architect, Ames, Ia.; M. H. Allen, manager field engineering and development, Structural Clay Products Research Foundation, Geneva, Ill.

### Brick and Tile of Ontario Elects Officers for 1961

The Brick and Tile Institute of Ontario, Canada, held its Fourth Annual Meeting at Toronto, Ontario, recently.

Officers elected for the coming year are: President, J. J. Coffey, Cooksville Laprairie Brick Ltd; vice-president, S. Burnstein, St. Catharines Brick and Tile Co. Ltd; secretary, F. A. Hughes, Sharp, Milne & Co. Ltd.

Along with the election of officers many fine papers were presented to the assembled delegates.

### Industrial Engineer Conference Announced For Detroit

The Detroit champer of the American Institute of Industrial Engineers will act as host this year to the Society's 12th annual national conference and convention to be held on May 11, 12, 13, 1961, at the Sheraton Cadillac Hotel, Detroit, Mich.

The program will include educational conferences, practical work shops and discussions, film sessions, technical papers and industrial exhibits. In addition there will be a one day symposium for chief industrial engineers. The entire program is designed to provide a variety of modern practical management tools to industry in general.

### Henry Named General Manager of Acme Brick

The appointment of Burnett Henry as general manager of operations for Acme Brick Co., Fort Worth, Tex., has been announced by Neil Boldrick, president.

### Judges Selected For PACE Award

Wayne A. Deringer, chairman of the National Institute of Ceramic Engineers PACE Award Committee, has announced that judges to select the recipient of the institute's third annual award for pressional achievement in ceramic engineering will be Messrs. Winston Duckworth, Karl Schwartzwalder and Hans Thurnauer.

Presentation of the award will be

*(Please turn page for more news)*

a feature of the annual meeting of the National Institute of Ceramic Engineers to be held at the Royal York Hotel, Toronto, Ontario, on Sunday, April 23, 1961.

### Ferro Transfers Pearch

Howard C. Pearch has been transferred to the West Coast by the Refractories Division of the Ferro Corp., Cleveland, O., and appointed works manager of its recently acquired industrial clay products plant.

### Lavino Appoints Whitlow

Clarence Whitlow has been appointed superintendent of the Gary, Ind., plant of the E. J. Lavino Co. The plant is now under construction, with operations scheduled to begin by mid-1961. The principal products to be produced are brick (unburned) of chrome and magnesite.

### L.A. Brick & Clay Products Names Reordan Vice President

Robert G. Reordan, sales manager of the Los Angeles Brick and Clay Products Co., Los Angeles, Calif., for the last four years, has been appointed a vice-president of the company.

### Pine Hall Brick Names Wilson Pipe Sales Manager

Emory L. Wilson has been named manager of the Pine Hall Brick and Pipe Co.'s Clay Pipe Sales Division, Winston-Salem, N. C. Wilson succeeds his father, Fred Wilson, who previously held this position.

### Scroop W. Enloe, Jr., Receives H. Wilson Memorial Award

Scroop W. Enloe, Jr., vice-president of the Harris Clay Co., Spruce Pine, N.C., has been selected as the recipient of the Hewitt Wilson Memorial Award for 1960 by the Southeastern Section of the American Ceramic Society. The award is made in honor of Dr. Hewitt Wilson, the section's first counselor and is awarded to a member of the section in recognition of that member's achievements in the field of ceramics.

## Attend Natco District Sales Meeting

Among the many who attended the annual eastern district sales conference of Natco Corporation in the New York City Athletic Club were: Standing (left to right): R. F. Shea, T. E. Toomey, Inc., Wakefield, Mass.; Niles N. Rice, superintendent of eastern district plants; J. L. Maloney, eastern district sales manager; J. A. Densmore, Densmore Brick Co., Lebanon, N. H.; J. C. Jenkins, Boston; and F. H. Thomas, New York City.

### Hardy Appointed Ceramic Engineer at Ludowici-Celadon

Ronald G. Hardy has returned to the employ of the Ludowici-Celadon Co., Chicago, Ill. and has been appointed ceramic engineer in charge of research at the company's New Lexington, O., plant.

### Whitacre-Greer Switching Over To Gas Firing

Work will begin soon on a $70,150 Ohio Fuel Gas Co. pipeline construction project to extend natural gas service to the Whitacre-Greer Fireproofing Co., near Magnolia, O.

The new pipeline, 6⅝ inches in diameter, will be almost 2½ miles long. Whitacre-Greer has requested natural gas service for processing.

### Stillwater Clay Products Co. Discontinues Clay Pipe Line

Production of clay products at the Stillwater Clay Products Co., Dennison, O., will be curtailed soon, it was announced recently by Arlo Scoggin, director of manufacturing. The plant employs 115.

Scoggin said no more pipe will be produced but that the plant will continue to process what is in the float, and will continue to ship and precast asphalt joints.

### R. H. Danison Appointed Honorary Colonel

R. H. Danison, for many years superintendent of the Ludowici-Celadon Co's. plant in New Lexington, O., has been appointed an honorary colonel on the staff of Governor S. Ernest Vandiver of Georgia.

### Woodbridge Clay Moves Offices

The offices of the Woodbridge Clay Products Co., a Rust affiliate founded in 1938, were moved from the Denrike Building in Washington, D. C. to Fall Church, Va., as of January 1. The new address is Room 305, Anderson Building, 450 West Broad Street.

### Mississippi Clay Products Annexes Fifty-One Acres

Frederick Mellen, president of Mississippi Clay Products, Inc., Yazoo

City, Miss., has announced the purchase of fifty-one acres of land south of Yazoo City.

The property, which cost $25,450, contains the best brickmaking clay in the state, according to Mellen.

Mississippi Clay Products also owns an option on a ten-acre site in the Yazoo Industrial Park, adjacent to the Yazoo River.

### Streator Clay Pipe Incorporates In Delaware

Streator Clay Pipe Co., Streator, Ill., filed a charter of incorporation with the corporation department of the Secretary of State's office, Dover, Del. Authorized capital stock of the firm is $2 million. Corporation Trust Co., Wilmington, Del. is serving as the principal office.

### Brick Executive Named Hospital Fund Chairman

John B. Conard, president of Richland Shale Brick Co., Mansfield, O., is General Chairman for the $150,000 campaign for a Mansfield Memorial Homes geriatric center. Conard donated a home as a recreation center for the aged.

## OBITUARIES

### L. R. Whitaker

Lorenzo Robert Whitaker of Columbia, S. C., a prominent figure nationally in the brick and clay industry, died on February 13. He was stricken with a sudden heart attack while at work in his office and died a few hours later in a hospital. He was the owner and operator of Carolina Ceramics of Columbia, S. C. A son, John M. Whitaker, and a daughter, Virginia, both of whom have worked closely with their father, have taken charge and plan to continue the operation.

Mr. Whitaker for many years has been in great demand throughout the world, as a consulting engineer in the ceramics field, having aided in numerous developments in England, Germany, several provinces of Canada, Hawaii, South America and Cuba. He was a native South Carolinian, took an active part in community affairs, and was buried in a suburb of Columbia, not far from the ceramics plant he built and operated.

Mr. Whitaker was the son of a Methodist minister. He graduated from Emory University, Atlanta, with a B. S. degree in chemistry, and then went to the University of North Carolina, where he won a B.S. degree in ceramic engineering. After graduation he became superintendent of Moland-Drysdale Corp., Henderson-

L. R. Whitaker

ville, N. C., then he went to Oliver Springs, Tenn., as superintendent of Shale Products Corp. From there he transferred to Columbia, S. C. to be superintendent of the Richland Shale Products Co. Later the owners of Richland Shale established the Carolina Ceramics plant and named Mr. Whitaker as operator.

Among his accomplishments were the designing of the Atlanta Brick and Tile Corp. of Atlanta, Ga. and the designing and building of the Chattahoochee Brick Co., also of Atlanta. He also built the Carolina Ceramics plant.

Clemson College, South Carolina's agricultural and mechanical institution, used Mr. Whitaker's services often, as adviser and lecturer in its ceramics department. He was a member of the American Ceramic Society, International Ceramic Engineers, The American Society of Professional Engineers, Keramos, and he was a Registered Professional Engineer of South Carolina.

Mrs. Whitaker was fatally injured in an automobile accident several years ago. Surviving Mr. Whitaker are two daughters and three sons. One son is Dr. Halford S. Whitaker of Memphis, Tenn. Two sisters also survive, Mrs. Imogene Jernigan of Little Rock, Ark., and Mrs. Travis Jernigan of Davenport, Fla.

## Region 5 SCPI Officers Elected

At the 17th Annual Meeting of Region 5, Structural Clay Products Institute held January 25-26 at the Sherman Hotel, Chicago, Ill., the 1960 officers were re-elected to serve during 1961. Treasurer Carl J. Brisch, (left), Brisch Brick Co., Chicago, Ill., discusses the coming year with President Winfield Eckley (center), U. S. Brick Co., Tell City, Ind., and Executive Secretary and Regional Director Colin C. Munro, (right), SCPI Region 5, Chicago, Ill. Vice-president Charles T. Richards, Richards Brick Co., Edwardsville, Ill., was not available for the photographs.

# SCPRF News

WILLIAM G. "BILL" TEMPLE, Treasurer of SCPRF, is a personification of the young industry executive who, because of his natural ability plus a well-rounded experience and a broad interest in industry problems, is assuming a position of leadership in the industry. Bill, who is president of Denver Brick and Pipe Co., Denver, Colo., has been in the structural clay products industry only 14 years, going to work for the Denver organization in 1946 following his discharge from the U. S. Air Force.

Mr. Temple is a native of Denver, having been born there and receiving his primary education in the Denver public schools. He was graduated from Culver Military Academy in 1938 and from Dartmouth College in 1942. Uncle Sam then tapped him on the shoulder and he spent the next 4 years in the Air Force.

Bill couldn't have started at a much lower rung on the ladder in 1946 when he went to work as a helper in the machine shop, and subsequently, worked as an off-bearer, fireman, brick wheeler, machine operator, and eventually, as a foreman. He was made executive vice president of Denver Brick and Pipe Co. in 1957 and, in 1959, took over the responsibilities of President of the company.

In addition to serving as one of SCPI Region 12's two representatives on the SCPRF Board of Management and on its Executive Committee, Mr. Temple has also been most active in SCPI regional affairs, having served on its Board of Directors for a number of years and as President of Region 12 in 1956 and 1957. Since his company is also a large producer of clay pipe, it is also a member of the Clay Products Association (midwest association of pipe manufacturers) and Bill has served on the Board of Directors of that group since 1957.

Despite his busy schedule, Bill finds time to serve as a director of the Colorado Federal Savings and Loan Ass'n., Trustee of the Mile High United Fund and as a director and member of the Advisory Panel of the Denver Research Institute—all this plus week-end skiing at Aspen when the snow is right.

* * *

*FOR THE SECOND TIME in as many years, the demonstration put on by the Structural Clay Products Industry was the hit of the "HOW-TO-DO-IT CARNIVAL" at the Annual Convention of the National Association of Home Builders in Chicago. SCPRF and SCPI staff members put on a fast moving, crowd-drawing demonstration, the theme of which was "research developments available now and in the future, tailored to the needs of the home builder."*

*The 30 minute show, repeated every two hours over a two day period, for a total of 7 times, featured the "SCR masonry process,"* "SCR brick,"** and the "SCR insulated cavity wall"*** as research developments available now. The builders were given a peek into the future when they were shown what high bond mortars, foamed-in-place insulation and lightweight clay products will do for the home builder. The over 10,000 home builders who watched these demonstrations on February 1 and 2 now know that the structural clay products industry is a lively, progressive industry that, through research, is constantly striving to develop new and better products and building techniques that will enable the builder to build better clay masonry homes.*

* * *

BILL HOUK, SCPI Regional Director in Seattle, Wash., reports that his organization's program of promoting "SCR brick" along with the "SCR masonry process" is beginning to bear fruit. As Bill says, "The two just naturally go together." Brick salesmen in that area are beginning to use these two research developments as sales tools and mason contractors are beginning to realize that the two used together can help increase their volume of business and cut down their overhead by reducing labor costs. As a result, the cost of a brick home in this predominately frame market can be reduced to only $500 more than for a frame home. Homebuilders are discovering that the public is more than willing to pay $500 more for brick. Futhermore, the builder can get additional loan commitments of up to $1.00 per sq. ft. of floor area for brick over frame—depending upon the locality. In an average house containing 1100 sq. ft., this means the builder can get $1100 more loan commitment if he biulds with brick. If the brick cost him only $500 more, he ends up with $600 more working capital. Bill quotes one homebuilder as saying: "The builder gets his money out of a brick house easier than he does a frame house in today's competitive market."

* * *

*STRUCTURAL TESTING of wall specimens built with the new high bond mortar being developed in cooperation with the Dow Chemical Co. is now continuing at the SCPRF laboratories. A racking test on the first of three wall specimens built for that purpose has just been completed. The 4-in. brick wall, 8 ft. by 8 ft., took a total load of 100,000 lbs., or 12.5 kips per lin. ft. before failing. The unit horizontal shear at failure was, therefore, over 300 psi. Similar tests at the National Bureau of Standards on 10-in. brick and brick cavity walls constructed with conventional mortars resulted in an average racking resistance at failure of 5.66 kips per lin. ft. or a horizontal shear of about 62.9 psi.*

*Concurrently with the structural testing program underway at SCPRF, Dow is conducting a series of weathering tests in order to evaluate the durability of the new mortar and the high bond developed at the brick-mortar interface.*

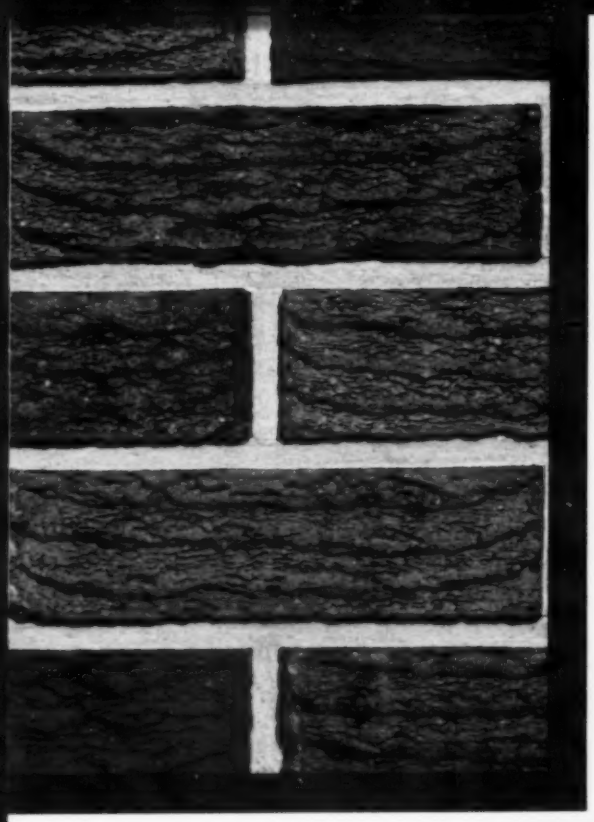
* * *

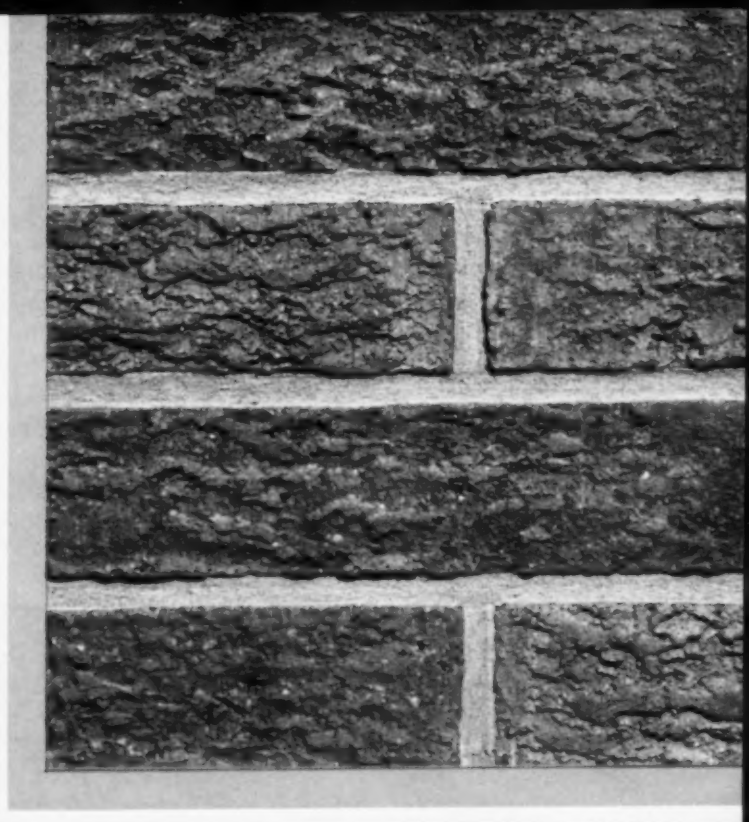
WORK ALSO CONTINUES at SCPRF on the development of polyurethane foaming and pre-foaming techniques. This unusual material has a number of very desirable properties which make its possible use in clay masonry construction most promising. Not only does it possess extremely good insulating properties and high resistance to vapor and water penetration, but it bonds well to masonry, plaster board, etc.

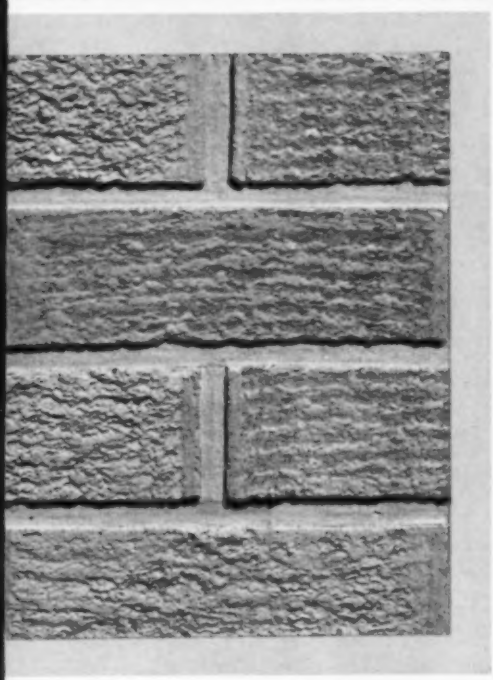
* Reg. T.M., Pat Pend., SCPRF
** Reg. U.S. Pat. Off., Pat Pend., SCPRF
*** Reg T.M., SCPRF

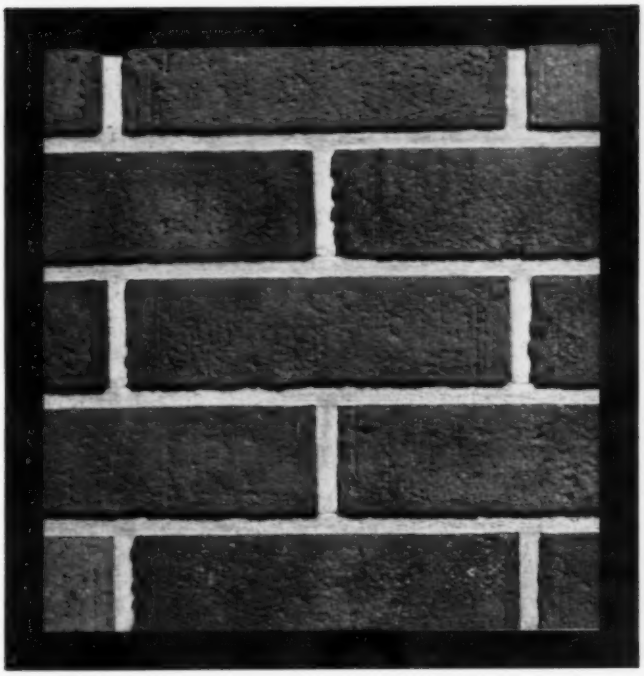


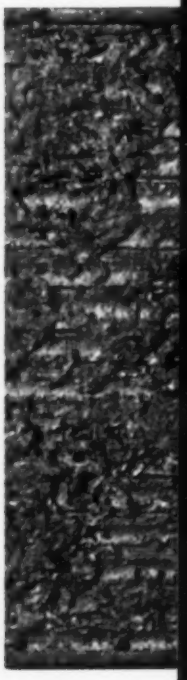
Circle Service No. 31 ⟶

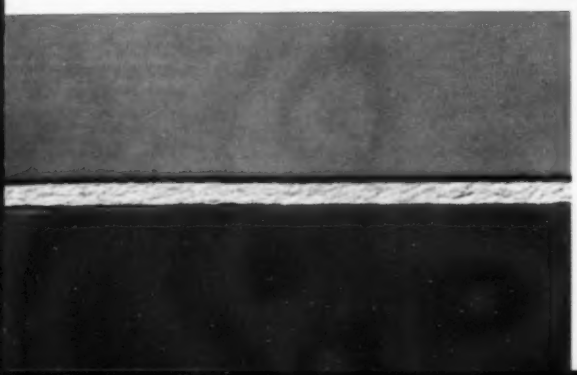












# Better Brick Production

*Another Report by*

FERRO

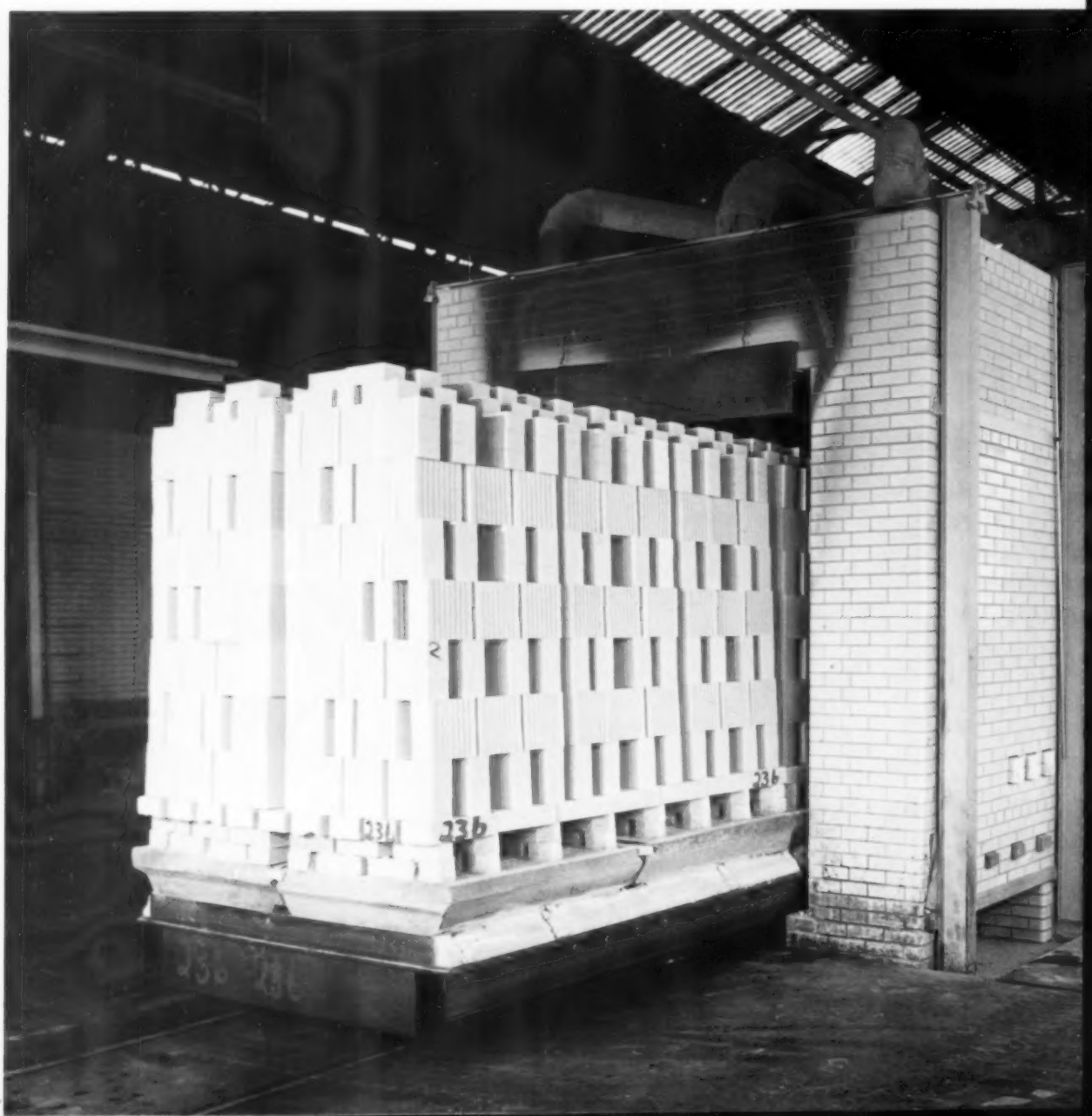
# Better brick production cuts costs, helps

Brick today has many "faces", many surface textures, myriad colors, a variety of shapes and sizes. Needless weight has been eliminated. Cross-breaking and crushing strength is much greater. New quality-controls in production assure close uniformity in product.

Brick has definitely held its own in a market ever growing more competitive. It is an attractive, flexible, thoroughly *modern* building material. Through technological advances and development of more efficient equipment, brick production has become highly mechanized. The whole manufacturing process has been greatly improved, as has the marketing of the products including packaging and promotion.

Ferro's *Allied Engineering Division* has played no small part in making brick production a bigger, better and more profitable business. Many of the largest, most modern plants were designed by Allied. The newest kilns in other plants carry the Allied name. Still other kilns have been rebuilt or modernized—equipped with more accurate and dependable firing controls.

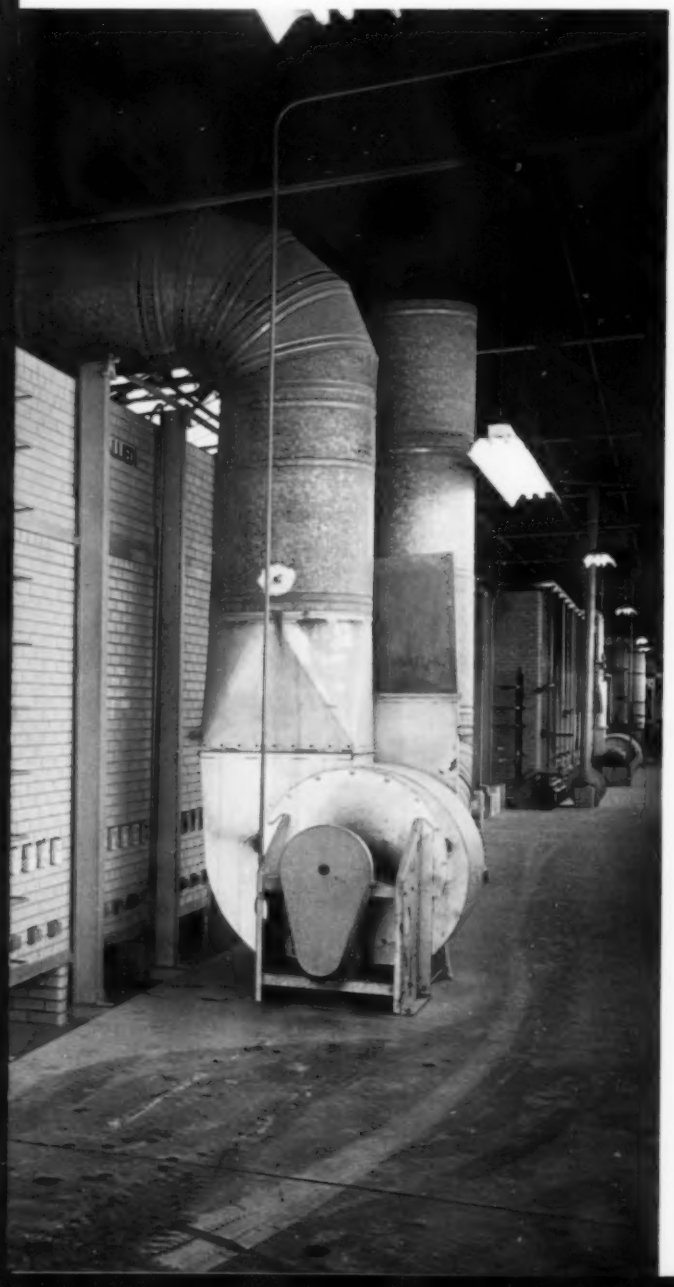
Ferro's *Glaze-Color Service* has contributed to the development of colorful, highly glazed brick for



# build bigger sales

decorative use. New colors have been introduced. New standards reached in uniformity of the glaze-frits supplied for brick production. Joint research has ironed out many troublesome production and quality-control problems.

In all phases of brick making—common, decorative, or the revolutionary, pre-calcined body "brick blocks"—Ferro has made it *its business* to stay on top of developments. This "know how" is constantly being passed on to our customers. By helping *you*, we help ourselves—and together build a stronger, more prosperous industry.



# Production of BRICK is our business, too!

There are many problems in the manufacture of brick that FERRO has encountered in its 30 years of serving this industry. Finding the answers isn't always easy, but our broad knowledge and experience have helped many companies to do so. If you need help on present production—or are looking for ways and means of improving your over-all operations—you'll find it profitable to call us in. *Five divisions stand ready to serve you.*

ALLIED ENGINEERING Division
Kilns, driers, controls, engineering service
CLEVELAND 5, OHIO

COLOR Division
Stains & oxides
CLEVELAND 5, OHIO

FRIT & GLAZE Division
Glaze frits, glaze-color service
CLEVELAND 5, OHIO · NASHVILLE 11, TENN.

REFRACTORIES Division
Setters, other kiln furniture
CESCO PLANT—CROOKSVILLE, OHIO
LOUTHAN PLANT—EAST LIVERPOOL, OHIO
ACF PLANT—TYLER, TEXAS

PORCELAIN Division
Grinding balls, mill linings
EAST LIVERPOOL, OHIO

FERRO—LOS ANGELES
A complete service for the West
LOS ANGELES 39, CALIFORNIA

FERRO

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In Canada: Ferro Enamels (Canada) Ltd., Oakville, Ont.

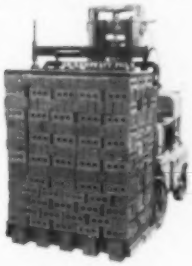
LITHO. IN U.S.A.

*in the brick industry, too . . .*

# BIG THINGS COME IN SMALL PACKAGES

And here's
the BIGGEST
LITTLE Package
you could get!

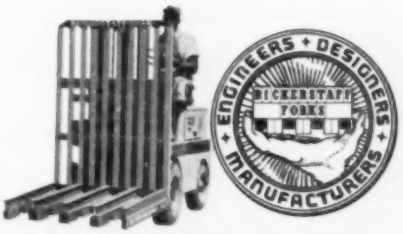
BICKERSTAFF
BRICK FORK



## a Bickerstaff Fork* is a Profit Maker!

Look at your brick handling costs. Do you see figures that seem out-of-line considering this phase of your operation? No doubt you do. Bickerstaff can help you change this. One Bickerstaff Fork does the work of eight men equipped with brick-barrows. Better still, Bickerstaff eliminates pallets and strapping. Loads direct to truck or freight car. Actually a Bickerstaff Fork is a "do-it-all" when it comes to brick handling. Get the whole story - write, wire or call, today!

* M-M MINIMUM MAINTENANCE ON ALL FORKS

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←Circle Service No. 37

## Made from Select Missouri Fire Clays
## WELLSVILLE FIRE BRICK
## gives Consistent Uniform Performance

Missouri Fire Clays - with their reputation for quality unexcelled throughout the world - are carefully selected and processed at Wellsville under strict quality controls to serve you with a truly superior refractory.

With a more than adequate source of these fine clays to back up a heavy investment in new facilities, in electronic controls, and in constant research, Wellsville produces several million brick a year - all with consistently uniform quality.

**SPECIFY WELLSVILLE WITH CONFIDENCE**

**WELLSVILLE** *Fire Brick* **COMPANY — WELLSVILLE, MISSOURI**

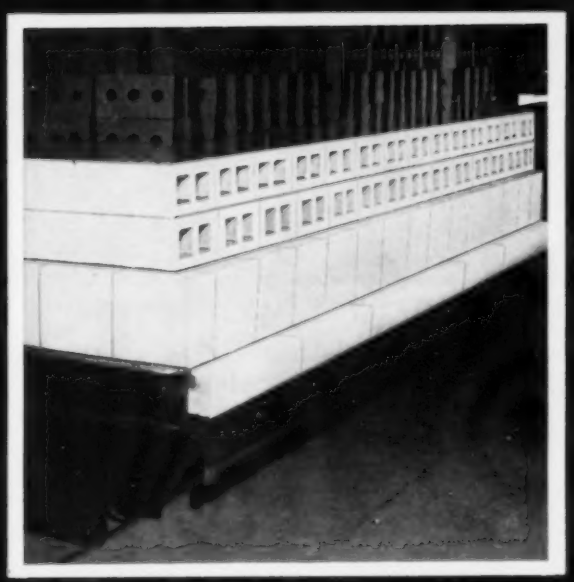
*Local representatives throughout the nation to better serve you.*

**Circle Service No. 39**

# PACO

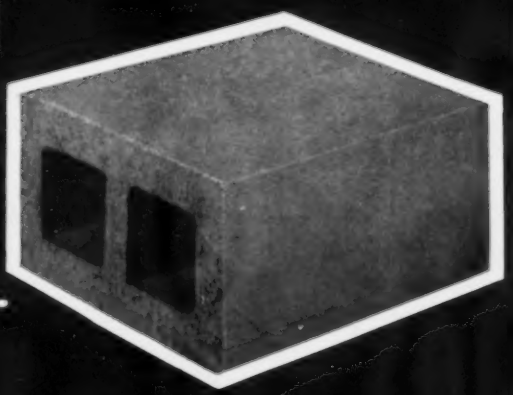
# CAR TOPS

*cut replacement cost by as much as 50%!*



It's a fact . . . nine out of ten users of PACO CAR TOPS are satisfied customers—and all report replacement savings up to 50%! For the utmost in service, you require a good first quality car top, highly resistant to spalling, and a good hot load test . . . and you get just that when you standardize on PACO.

You and your plant can enjoy these increased savings simply by placing a trial order. There is a PACO engineer as close as your telephone . . . or write us direct for complete information.



*Manufactured by*

**NORTH STATE PYROPHYLLITE CO., INC.**

GREENSBORO, NORTH CAROLINA

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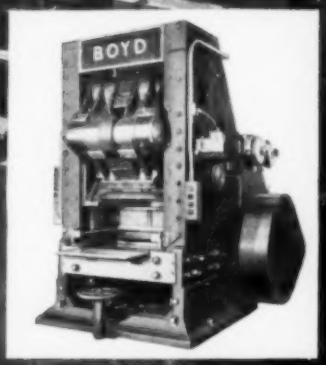
**Circle Service No. 40**

# BOYD PRESS IS BASIC / for coke oven refractories




Coke being pushed at Granite City Steel Company

## MODEL Y delivers power and density for larger brick . . . more intricate shapes

With coke pushing on the increase, more and more refractory producers are relying on the Model Y Boyd Press.

This big, heavy duty press is especially built to deliver the power and pressures needed to meet increased demand for bigger, deeper coke oven brick. A 12″ deep cavity and the big 37″ x 21″ mold opening gives you increased latitude for special shapes and/or increased output per stroke.

Why not investigate how a *step up* to Model Y can give you the increased density, resistance to spalling and the bigger coke oven brick that your customers are looking for? Write for details.

*INTERESTED IN TAR-BONDED?*

If you have a Boyd Press or require one to serve this growing market . . . let experienced CB&W engineers show you how to make the most effective use of your press.

BOYD
POWER
PRESS

**CHISHOLM, BOYD & WHITE COMPANY**
*SUBSIDIARY OF WEHR STEEL COMPANY*
**610 W. 57th STREET • CHICAGO 21, ILLINOIS**

Circle Service No. 41

# News of Refractories

### R&I Opens New Warehouses and Sales Offices

Refractory & Insulation Corp., New York, N. Y. recently opened new sales offices and warehouses in Pittsburgh, Pa., Detroit, Mich., and Birmingham, Ala., areas.

According to the company, it was necessary to establish new offices and warehouses in these cities because of the constantly expanding line of refractory and insulation products being offered, as well as the necessity of bringing new developments to users' attention more quickly and effectively. Additional offices are being planned for Boston, Mass. and Charleston, W. Va.

Ray Hegeman, general sales manager of the Refractory & Insulation Corp., New York, N. Y. has announced the appointment of George Andrews as head of the company's new sales office and warehouse in Pittsburgh, Pa.

George Andrews

Mark D. McClain

### McClain Elected Vice President Of A. P. Green Fire Brick

William S. Lowe, president of the A. P. Green Fire Brick Co., Mexico, Mo., has announced election of Mark D. McClain as a vice-president of the company. Prior to his election to vice-president by the company's board of directors, McClain served as assistant vice-president and assistant to the general manager with headquarters at Woodbridge, N. J.

### North American Buys Ironton Fire Brick

Officials of North American Refractories Co., Cleveland, O. and the Ironton Fire Brick Co., Ironton, O. recently announced the acquisition by North American of the assets of Ironton Fire Brick, subject to the approved by the boards of directors of both companies and by the stockholders of Ironton.

Ironton is headed by E. F. Myers, chairman of the board and president, who will retire when negotiations have been approved.

E. W. Valensi, president of North American, stated that the acquisition of the Ironton plant will substantially improve NARCO's competitive position in the industry.

### General Refractories Names Distributor

The General Refractories Co., Philadelphia, has announced the appointment of the Sussman Asbestos Co., Toledo, O. as distributors for Grefco's "Complete Refractories Service".

According to company spokesman, an adequate stock of the more commonly used products in the Grefco line will be carried in the Toledo warehouse. In serving their customers, the new distributor will have the assistance of Grefco salesmen and engineers.

### Harbison Walker 1960 Sales, Earnings Up 11%

Harbison-Walker Refractories Co., Pittsburgh, Pa. estimated 1960 sales reached $98 million, up 11% from the near-$88 million of 1959, according to E. A. Garber, the company's chief executive officer at a special meeting of stockholders recently.

Garber predicted that with a slight increase in business conditions, the company will enjoy a successful 1961.

He said Harbison-Walker will increase production at its Hammond, Ind. works and also reported that operations in Canada were at a better level than those in the United States.

### New Canadian Plant In Operation

New facilities for the manufacture of high magnesia basic refractory mixes for use primarily by the steel industry have now been placed in operation by Refractories Engineering and Supplies, Ltd., Montreal, Canada. The new facilities are located at Bronte, Ontario.

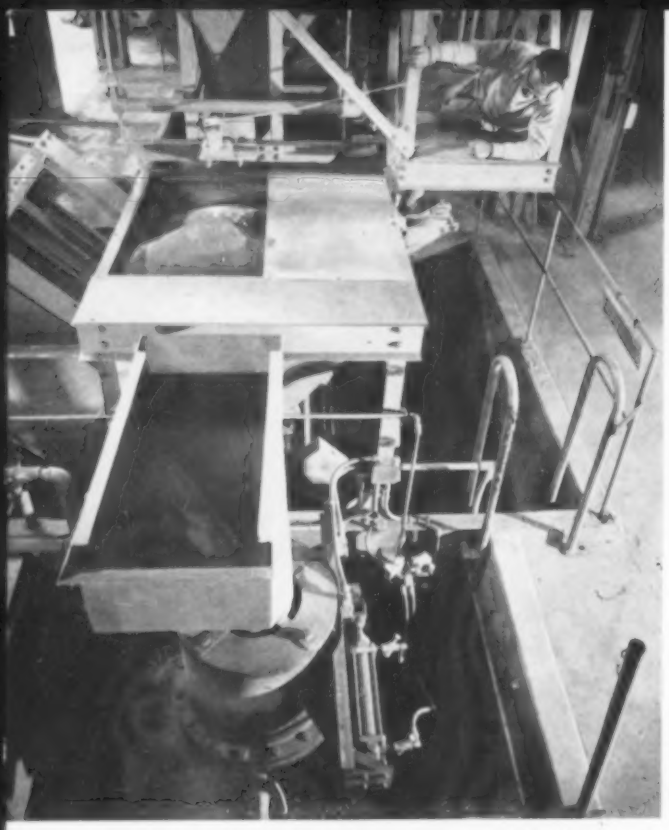
G. W. Paterson, vice president and general manager, said that the products are manufactured under license from Kaiser Refractories and Chemicals Division, Kaiser Aluminum & Chemical Corp. Refractories Engineering and Supplies, Ltd. is an affiliate of the Kaiser organization.

Principal products manufactured at the new plant are ramming mixes and special mixes for use with pneumatic guns. Previously Canadian users have been importing these products from the United States.

### Ferro ACF Plant Wins Safety Award

The American Clay Forming plant, Tyler, Tex., of Ferro Corp's. Refractories Division has received special recognition for its outstanding 1960 industrial safety record, it was recently announced by Elmer Beck, general manager of the division.

The plant won first place in competition with 40 similar size plants in a National Safety Council contest and also won the Ferro annual "President's Award" for the best safety record out of the 16 domestic operating units of the corporation, the Refractory Division's "General Manager's Award", a "Corporate Award of Honor", and a special citation from the Fidelity & Casuality Insurance Co. for "distinguished service . . . . in the field of safety".



Weigh lorry charges National pneumatic transporter (foreground) used to convey dry mix 150 feet to stiff mud preparation unit. Bins in background serve dry press firebrick line.

# Air Conveying Boosts Production, Uses Less Space

Pneumatic system releases floor area that would otherwise be occupied by conveying and batching equipment at North American Refractories

At Curwensville, Pa., North American Refractories Company now conveys all stiff mud and dry mix material pneumatically.

When a new stiff mud preparation system was installed recently, it was necessary to locate the blender in a cupola three stories above the production floor and about 150' from the raw material storage area. Charging of the mixer by either truck or mechanical conveyor was considered to be physically and economically impractical because of plant layout and length of run.

### Recently Installed

North American decided to try a pneumatic conveying system similar to one they had recently installed at their Womelsdorf, Pa. plant. It was used to convey prepared material from Simpson Mix-Mullers to their dry presses.

The pneumatic system, designed by National Engineering Co., Chicago, Ill., was installed so that the transporter could be located in a pit adjacent to their central batching station . . . and charged by the same weigh lorry which serves their dry press charging equipment (see photo above).

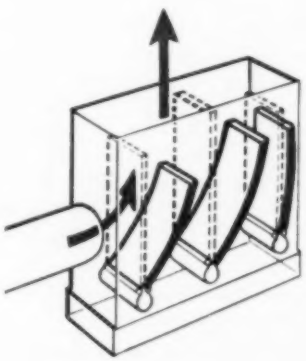
A single 4" steel pipe was installed to carry material from the transporter to the mixer. It should be pointed out that the transporter pit occupies floor space of only 5' by 5'. All piping was run overhead and terminates inside of the mixer enclosure in a simple baffle box (see diagram at right).

The baffle box, which has no moving parts, eliminates the need for secondary storage hoppers above the mixer. The full batch is blown directly from transporter to mixer.

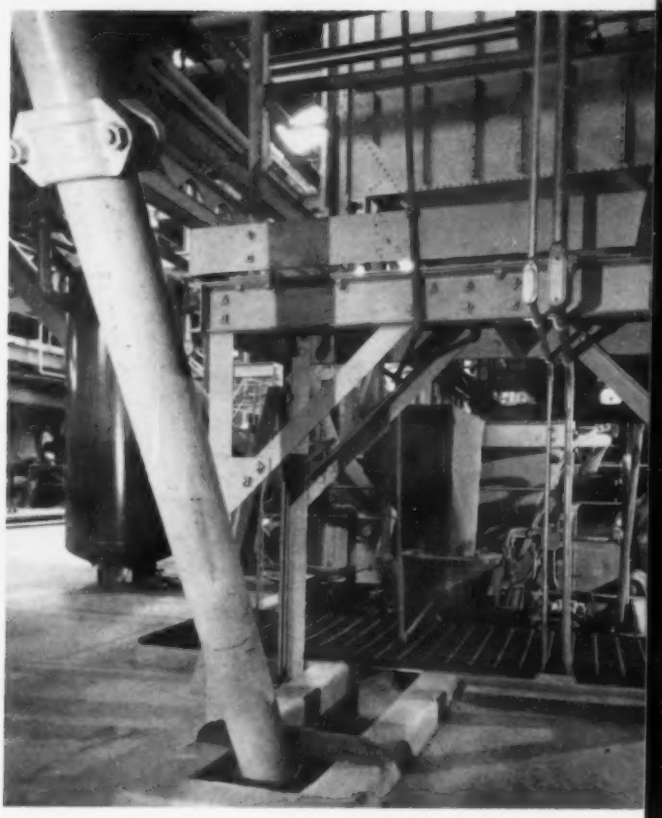
### Operation is Centrally Located

A central auto-manual control panel is used to program the entire stiff mud preparation system (p. 57, top left). When the transporter has been charged, tho operator pushes a button to release air into the transporter to aerate the material. When the proper degree of aeration is achieved, the material flows through the pipe line. The blow lasts for approximately three minutes, and the

Diagram of baffle box receiver used to charge mixer. Rubber baffles divert sand flow—are removable, reversible. No mechanical components are employed.



Control panel programs operation of air conveyor system as well as mixing, pugging and extrusion of stiff mud facility. One man operates system.



Pneumatic transporter (background) is supplied with air from vessel at left. Batch is blown through pipe (foreground) to mixer.

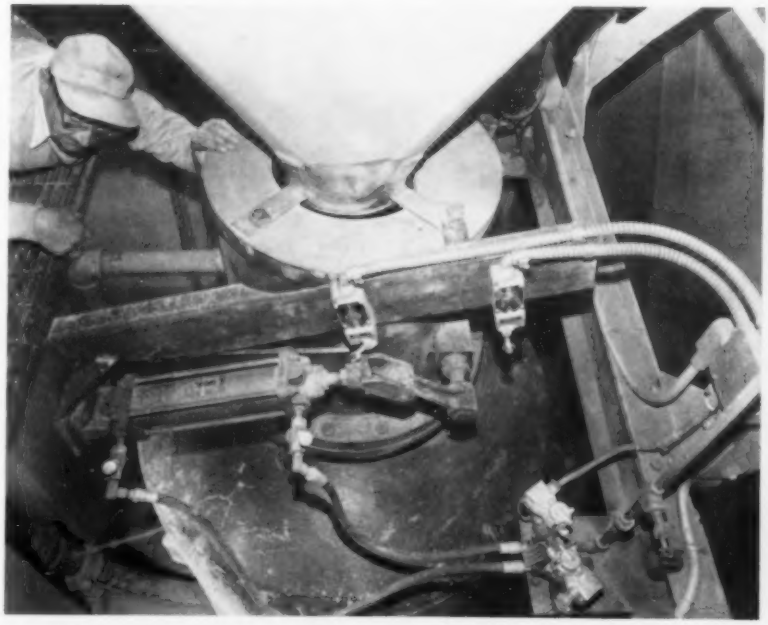
material travels better than 150′ to the mixing pan.

Batch composition is 8 mesh, stiff mud fire clay dry mix, containing about 2% moisture. The mixer is programmed to start automatically upon receipt of batch. Subsequent wet blending and extruding operations are similarly programmed.

### Benefits Cited

Use of air conveying and installation of this fully automated system has permitted North American Refractories to increase their stiff mud production potential while actually reducing the plant space required for production. Much floor area that would other wise be occupied by conveying and batching equipment is left free for other uses.

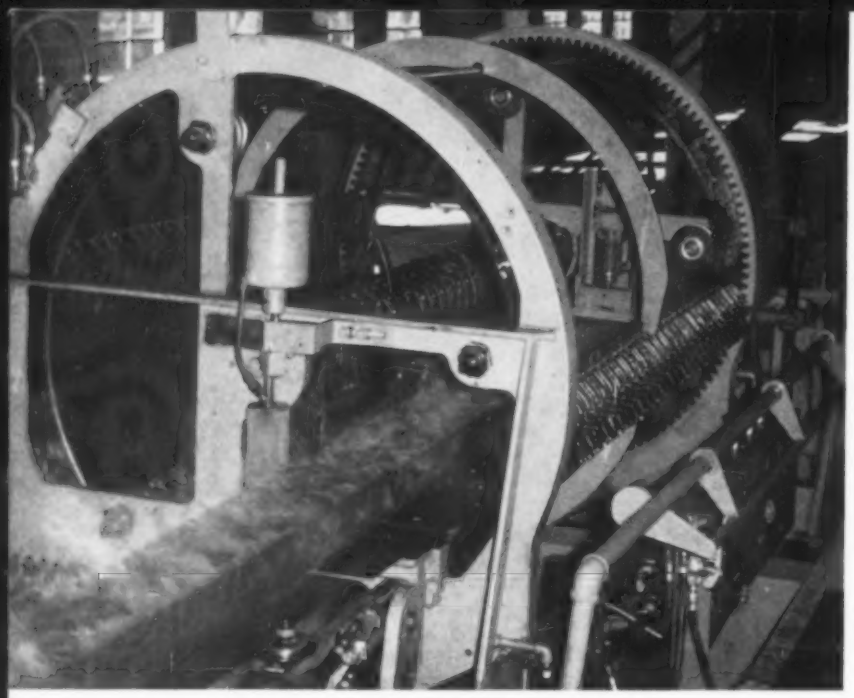
In addition, only one man is required to operate the new stiff mud facility, and automation has resulted in better and more reliable quality control measures.



Closeup of pneumatic transporter at Curwensville plant of North American Refractories Co. Use of the system has increased plant's production potential.

# Brick Firm

## Low Cost



Cutter was designed to cut 25,000 brick per hour.

By ELMER SPAIN

Low cost flexibility and quality production were the major planning considerations that have resulted in the Midwest's newest brick plant at Nebraska City, Neb. Constructed on a site that has been used for brick manufacture for 70 years, the new facilities almost triple the daily capacity of the Nebraska City Brick & Tile Co., using the same labor force as before.

Prior to 1958 the location had never produced anything other than red brick, however the physical facilities were acquired by the Nebraska City group that year as well as a plant at Hastings, Neb. The Hastings plant was dismantled. One of the first acts of General Manager Clyde W. Humphrey was to make a cursive examination of the available raw materials.

This indicated that the red burning material was over-laying a shale that would burn light buff, consequently the entire 100 acre tract was core drilled with the result that both buff and pink firing clays were found to exist in large quanities. Sixteen feet of pink clay was overlaid by 18 feet of buff which was in turn covered by red burning shale, which varied in thickness from zero to 30 feet.

The newly discovered material was easier to form, dry and fire. It matured at the same temperatures as the red burning shale and produced brick of high compressive strengths and low mass weights.

The new discoveries were immediately put to use.

### Build New Kilns

Mining and raw material preparation was modernized at that time using as much of the existing machinery as possible. However, it was decided that higher production capacities of the plant could come from completely new millrooms and kilns.

The actual site work started late in 1959 and required much preparation to level the land area required for the proposed construction. A prestressed concrete frame building 500 feet long, with a minimum width of 80 feet was erected by the Nebraska Prestress Co. of Lincoln.

This building is "L" shaped and is 250 feet long on the base of the "L". The building has 40 foot clear spans and a usable ceiling height of 26 feet. The built up roofing was applied over the insulation. High intensity, 2,000 watt lamps are used to bring illumination up to the highest industrial standards.

An all new millroom was installed in the bay of the building with ground raw materials being delivered from the existing storage bins that supplied the old plant.

The high capacity extruder was supplied by Fate-Root-Heath. Driven with a 200 HP Fairbanks-Morse motor this machine was purchased with the idea of a maximum rate of 20M standard units per hour. A remote controled Twin Disc air clutch permits push button control of the machine. The motor, drive and extruder are protected from becoming overloaded with a system that measures the amperage load and disconnects the air clutch if the load exceeds one pre determined by the operators.

As an aid to the pug mill operator a signal is sounded when the load approaches the throw out point, allowing him to make the proper adjustments and correct situation before the production is stopped. The control device also is connected through a strain gauge on the thrust yoke in a manner that will limit the maximum thrust which can be applied.

### One Point Control

A one point control panel allows the extruder operator to control all feeders, conveyors, the cutter, offbearing and return belts as well as the additive feeders from his station on a raised platform on which the forming equipment is installed.

Tanks for storage of die lubricating oils and Additive "A" were in-

# Triples Capacity with Same Work Force

## Flexibility, Quality Production Keynote Midwest's Newest Brick Plant

stalled on a hard stand with the pumps and controls for these supplies. Easy access for inspection and maintenance is an obvious result of this pre-planning.

A Chambers #32 cutter, equipped with a 27 brick platen was installed to cope with high production rates. Designed for 25M units per hour the cutter will handle any product cross-section up to 8" x 12" by merely changing screw adjustments on its base. Roman brick must be cut on an extra platen set supplied with the cutter and which has quick change features to reduce down time for machine change. Air to operate this unit is supplied by a Chicago compressor.

### Provide Variable Speed Drive

A variable speed drive was provided for the off-bearing belt in order that spacing between individual brick could be maintained at the most effective distance for handling by the off-bearers. Four hacking tracks were provided, each with a push button controled hydraulic pusher supplied by Engineering Associates. Scrap return is on a conveyor set directly below the off-bearing belt.

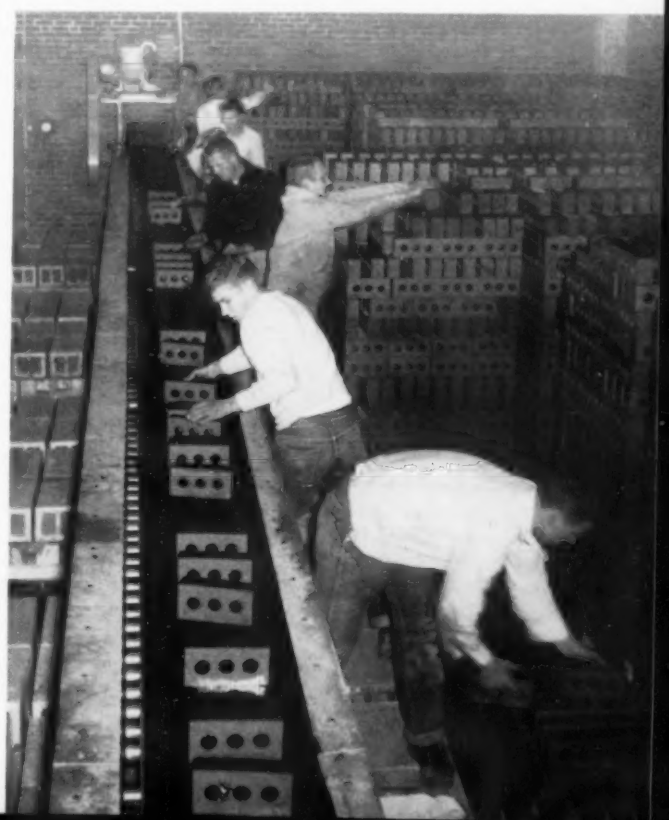
As soon as the 16 course high kiln car settings are complete the cars are pushed into a four track warming chamber. This unit is 116 feet long and maintains conditions of moderate temperature and high humidity in order that all green brick can be placed into the drier in a uniform condition.

Each of the tunnel kiln cars carry 3,600 standard brick and are 9'-6" by 7'-5" wide. Top construction is of "Lumnite" concrete and high temperature Paco top block. Forty eight cars or over 170,000 brick can be held in the warming chamber.

The kiln and drier were built by Harrop. The drier is double tracked and 154 feet long. It is supplied with heat from the cooling sections of the kiln and uses high recirculation rates as well as zone controls to maintain designed conditions of temperature and humidity.

Car circulation through the plant is unusual. Movement is first through the warming chamber and flow direction is then reversed as the cars pass through the drier and then reversed again to pass the brick through the kiln. These flow directions were dictated by the limitations of the site. Lying in a narrow rift on the bank of the Missouri river, level land was at a premium and the designers compromise has resulted in a compact work area, unusual in such a large plant.

The kiln is 384 feet long. Designed for 65M red brick per day



Off-bearing station. Nebraska City Brick & Tile Co. has tripled its daily capacity using the same labor force as before.

it had reached 70M some three weeks after the plant had been put into operation.

Plant operators anticipate still higher rates as experience is gained and when production is switched to the buff material greater production is assured as this material is more tractable.

The kiln is equipped with a double door guillotine, air lock entrty, automatic in operation once the kiln loading cycle is initiated. To insure quality firing exceptionally long excess air or preheat and cooling sections have been provided.

Out of the total of 40 cars in the kiln at one time only eight are in the furnace section. Four are in the flue zone; 5 are under high recirculation with 9 excess air burners per side; five cars are in the pre-heat section with a total of 26 burners and 13 cars in the cooling zone. The furnace zone has 18 lower and four upper burners per side. All burners are North American dual fuel. Number two oil is used as stand-by in case of curtailment of natural gas, the primary fuel.

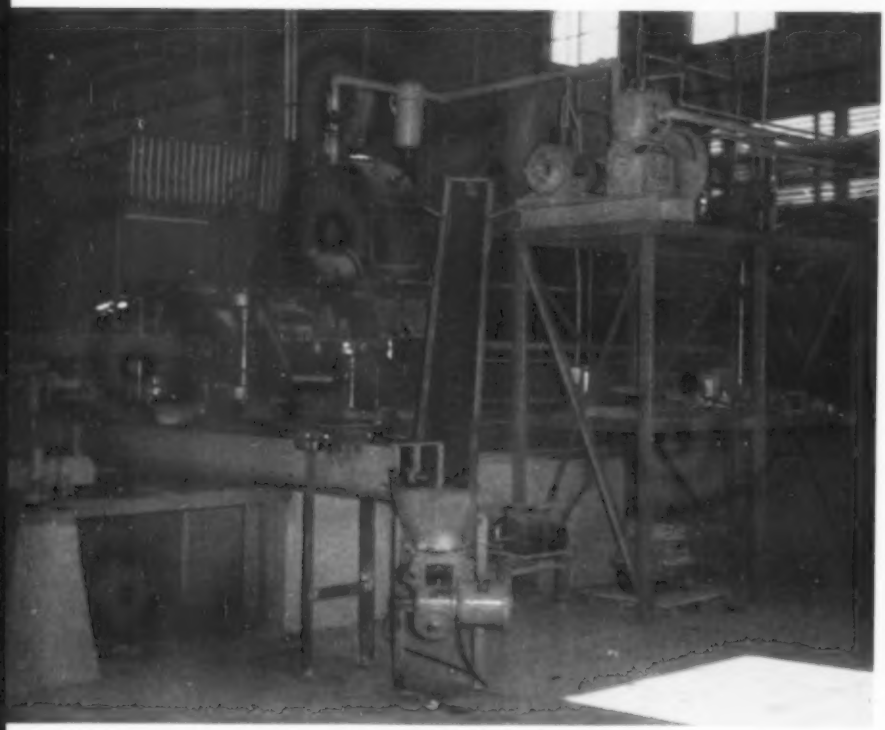
Combustion air is supplied by NA blowers. All air movement and recirculation in the kiln and drier is handled with Robinson Ventilating fans.

The furnace section is divided into two temperature controlled zones. The latest Leeds-Northrup recording controllers are used in conjunction with proportioning valve equipment to maintain steady conditions. The pre-heat section is also controlled by an identical system.

When the plant was put into operation, fired brick were placed directly on wooden pallets from the kiln cars and subsequently handled with Clark fork trucks. The plant operators have decided that steel strapped packages will be the most effective way to handle finished brick. Equipment has been installed by which kiln cars will be unloaded directly to an automatic strapping machine. An Acme-Link Belt 18-jig strapping unit has been installed. All of these testify to the forward-looking policies of the management.

While the new buildings and equipment represent important advances in plant techniques the mining and grinding operations also illustrate the ingenious solutions typical of this operation.

In the pit, each of the three basic raw materials is separated by six inches of rock. This allows a clean bench method of mining. Stripping of over-burden and rock has exposed ample quantities of each material, each uncontaminated by the other clays.



Screw conveyors handle return of texture scrap to pug.

### Stock Pile Materials

A 2½ yard North West shovel is used to load two Mack dump trucks and these in turn stock pile the material by the preliminary grinder. A Michigan front end loader is used to feed a McLanahan stone roll. The clay then moves into a double dry pan set-up. These are nine foot machines and they discharge into a double ⅝ Universal screen set. The 12 mesh screen cloth is both heated and vibrated. Tailings are returned to the dry pans or selectively to a small Williams hammer mill.

Ground clay is stored in four bins, each holding approximately 100 tons. The pug mill operator can control the feed from any combination of the four, blending or averaging as the need may be.

Plant designed, auger type feeders are used and have been found to deliver a constant flow of clay. Variable auger exposure in the bins allows quantity rates to be changed at will. Barium is added in the bin area with a small belt feeder.

The grinding section is housed in a 90′ by 48′ sheet steel building while the separate clay storage building is 110 by 28 feet.

The original design made provisions for the installation of duplicate forming and burning equipment and early doubling of capacity is now anticipated. According to Clyde Humphrey, general manager, this will require additional grinding and screening facilities.

### Barge Shipments Possible

Located as it is on the Missouri river, barge shipments are possible, supplementing truck and rail connections. Reaching as it must, distant consuming areas, much of the product handling plans have centered around the unusual requirements of a plant producing multiple sizes and

(*Continued on page* 86)

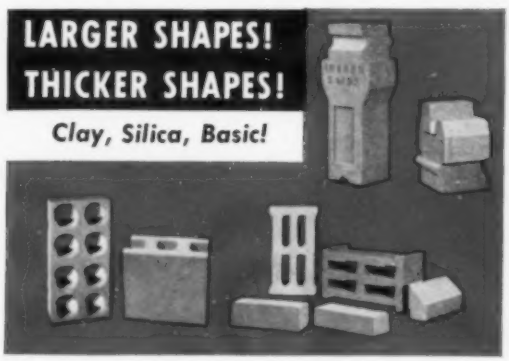
*PATENTS APPLIED FOR

*A complete press including Charger Assembly and Control System and having 32 cycling combinations at the flick of a switch.*

*Photo shows 19" x 9½" x 6" open hearth skew made on the Superior Press.*

## *Announcing the New*

- ► ***POSITIVE* Impact Control**
- ► ***POSITIVE* Thickness Control** (with Quick Thickness Change)
- ► ***THICKER* Tile Capacity** (more than any other impact press-6"-8"-9")
- ► ***FASTER* Complete Outfit Change**
- ► ***LOWER* Equipment Cost**
- ► ***LOWER* Installation Cost**

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Now you can make larger, thicker shapes—faster and at lower cost than ever before! *The New SUPERIOR Press makes thicker tile than any other impact press.* Shapes up to 6", 8" and even 9" can be handled easily and quickly with *any* refractory material. And it's so simple to change from one shape to another because *you can change dies in minutes!*

With the SUPERIOR Press you get equidensity impacting—all the time—with no vibration waves. There is positive step sequence control with full pressure and flow control of all air circuits.

In short, SUPERIOR Press means SUPERIOR PERFORMANCE and you need it first for that reason. The fact that it costs only a fraction of the cost of other presses—and can be installed for a mere fraction of other press installation cost—will prove a most pleasant and profitable surprise. *So don't delay!* Get the SUPERIOR story NOW and get started on more profitable plant operation.

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**Circle Service No. 42**

# Pacific Clay Pioneers Pipe Progress

## Impressive List of Production 'Firsts' Backed by Vigorous Marketing Program

Pacific Clay Products was a pioneer in the manufacture of clay pipe on the west coast. The first plant was built in 1886 at Corona, California. Production was diversified at the plant which made not only vitrified clay sewer pipe but also refractory brick. In 1910, the several plants in both the Corona and Los Angeles areas were consolidated into Pacific Sewer Pipe Company. In 1911, the Pacific Sewer Pipe Company built a large new plant at what was then Los Nietos, but which has now been incorporated into the City of Santa Fe Springs. In the meantime, some of the older plants were closed down. In 1923, Pacific Clay Products, Inc. was organized and took over the operation of the then existing plants of the former company. The name was changed in 1925 to Pacific Clay Products.

### Produce 180,000 Tons Annually

Pacific Clay Products now operates vitrified clay pipe plants at Santa Fe Springs and at Stockton, Calif. These two plants produce, in the aggregate, about 180,000 tons per year. Approximately one-half of this tonnage is marketed with factory made flexible compression joints. These joints are made in the complete range of sizes, 4" through 42".

Pacific Clay Products carries on a continuous program of plant improvement and modernization. At both of its plants, there have been installed in recent years new forming, drying, and firing facilities. These facilities reflect the latest developments in this age of rapidly unfolding technology. Such developments, which are designed to accomplish the two basic aims of improved quality and lowered costs, promise a bright future for the company and for the industry of which it is a part.

Pacific Clay Products has pioneered

(*Text continued on page* 64)

(*Plant layout on page* 63)

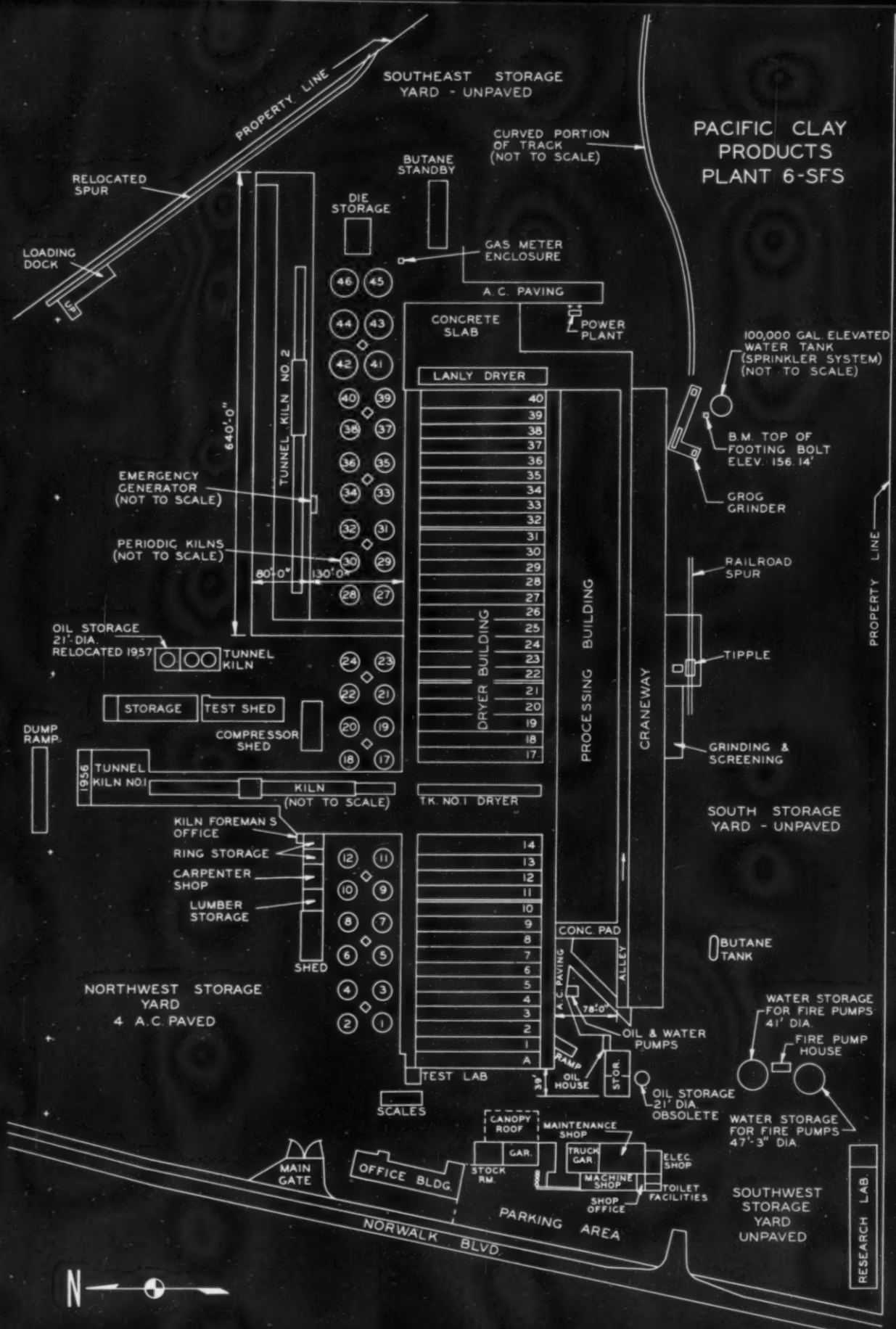
### Pacific Clay President's Statement of Company Policy

Vitrified clay pipe is the principal product of Pacific Clay Products. We attribute the continuing growth of our company to (1) our constant efforts to improve quality and reduce costs, and (2) a vigorous marketing program directed both to the specifiers and installers of sanitary sewer systems.

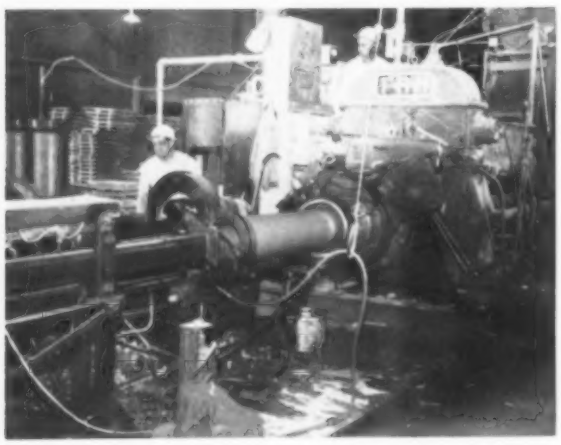
A major factor in the company success is our continuing research and development program. The technical problems of the vitrified clap pipe industry can be summarized by stating that the manufacturing process of our product must change from an art to a science. We have made considerable progress in this direction, but much work remains to be done. The efficient application of modern control techniques and manufacturing processes depends, to a large degree, upon our basic knowledge of the physical and chemical changes that take place in the clay pipe manufacturing process. We are gaining this knowledge through basic research carried out by cooperative research programs in the industry and in our own laboratories. As we achieve a better understanding of clays and their potential in the manufacture of vitrified clay pipe and other clay products, we implement the improvement of our manufacturing processes through the development of new procedures, equipment and machinery. Lower costs and higher quality are the inevitable result.

The relative cost of our raw material and the unmatched durability of our product, combined with effective research and sales promotion programs, insure an ever expanding market for Pacific Clay Products.

John D. Fredericks
President, Pacific Clay Products


PACIFIC CLAY PRODUCTS PLANT 6-SFS
SOUTHEAST STORAGE YARD - UNPAVED
PROPERTY LINE
CURVED PORTION OF TRACK (NOT TO SCALE)
BUTANE STANDBY
RELOCATED SPUR
DIE STORAGE
LOADING DOCK
GAS METER ENCLOSURE
A.C. PAVING
CONCRETE SLAB
POWER PLANT
100,000 GAL. ELEVATED WATER TANK (SPRINKLER SYSTEM) (NOT TO SCALE)
LANLY DRYER
TUNNEL KILN NO. 2
640'-0"
B.M. TOP OF FOOTING BOLT ELEV. 156.14'
GROG GRINDER
EMERGENCY GENERATOR (NOT TO SCALE)
PERIODIC KILNS (NOT TO SCALE)
80'-0"
130'-0"
DRYER BUILDING
PROCESSING BUILDING
CRANEWAY
RAILROAD SPUR
PROPERTY LINE
TIPPLE
OIL STORAGE 21' DIA. RELOCATED 1957
TUNNEL KILN
STORAGE
TEST SHED
COMPRESSOR SHED
DUMP RAMP
GRINDING & SCREENING
1956 TUNNEL KILN NO. 1
KILN (NOT TO SCALE)
TK. NO. 1 DRYER
SOUTH STORAGE YARD - UNPAVED
KILN FOREMAN'S OFFICE
RING STORAGE
CARPENTER SHOP
LUMBER STORAGE
SHED
CONC. PAD
ALLEY
BUTANE TANK
A.C. PAVING
78'-0"
NORTHWEST STORAGE YARD 4 A.C. PAVED
OIL & WATER PUMPS
WATER STORAGE FOR FIRE PUMPS 41' DIA.
FIRE PUMP HOUSE
RAMP
OIL HOUSE
STOR.
TEST LAB
39'
OIL STORAGE 21' DIA. OBSOLETE
SCALES
CANOPY ROOF
MAINTENANCE SHOP
WATER STORAGE FOR FIRE PUMPS 47'-3" DIA.
GAR.
TRUCK GAR.
ELEC. SHOP
STOCK RM.
MACHINE SHOP
TOILET FACILITIES
SHOP OFFICE
MAIN GATE
OFFICE BLDG.
PARKING AREA
SOUTHWEST STORAGE YARD UNPAVED
RESEARCH LAB.
NORWALK BLVD.
N

Stevenson-Adamson conveyor delivers clay to pug mill. A Syntron feeder feeds barium carbonate to clay.



Extruding pipe horizontally through Fate-Root-Heath extruder and Pearne & Lacy forming and handling equipment.

Loading pipe for polyvinyl chloride coupling application.

many new developments in the clay pipe industry on the west coast. Some of these are: 1. First to use hydraulic presses in 1928. 2. First to make and sell 6 foot pipe in 1930. 3. First to ceramic glaze pipe in 1931. 4. First to sell unglazed pipe in 1931. 5. First to make 42″ pipe in 1938. 6. First to use tunnel kilns of large size in 1946. 7. First to make flexible plastic compression joints in 1955. 8. First to make flexible compression joints on 39″ pipe in 1959.

### Rebuild After Fire

Late in 1950, after a disastrous Thanksgiving Day fire, Pacific Clay Products began the rebuilding of its Santa Fe Springs plant, the world's largest vitrified clay sewer pipe plant. Since then, an almost continual program of expansion, modernization, and installation of new equipment has been underway. Today, with the operation of two tunnel kilns and 37 periodic kilns this plant produces over 10,000 tons of vitrified clay sewer pipe per month.

Recent improvements in production facilities at the Santa Fe Springs plant include the installation of a second tunnel kiln, the construction of a large Lanly drier, the complete revamping of storage facilities with large paved areas as a basic improvement, and the construction of facilities for mechanizing the production of factory applied flexible compression jointed pipe. Approximately 25,000 square feet of floor space is devoted to processing this latter material.

With pipe produced at its Santa Fe Springs plant, Pacific Clay Products services the expanding markets in Southern California, Arizona, and Nevada. Northern California and the Pacific Northwest are serviced out of its Stockton plant. Vitrified clay pipe from both plants is shipped to Hawaii to meet the increasing demand in the new 50th state.

### Many Clays Used

In the production of pipe, 4″ through 42″ diameter, at its Santa Fe Springs plant, Pacific uses carefully controlled and compounded formulas of several different clays depending on the sizes of pipe being processed. These clays are mined and transported to the plant in company owned hopper trucks.

The clays are first blended and

*(Continued on page 82)*

New "Brick Pak" Wire Strapping

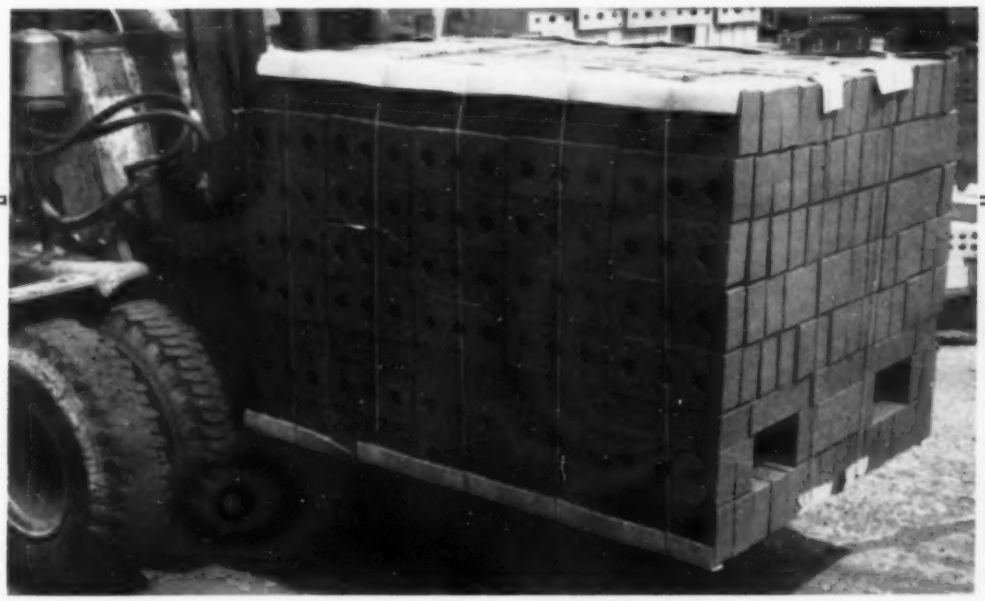
***Guaranteed***

# NON-STRETCH

## 25-40% COST SAVINGS

***No Rust . . . No Stretch . . .***

***No Shear . . . No Tear . . .***



Available: A completely automatic tying system—hand tools and semi-automatic machines—hacking jigs and components for cubing.

## *ENGINEERING SERVICE*

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PACKAGING

TO THE MAN

Interested in Expediting Final Product Handling

Here's what companies in the industry do to solve the age-old problem of handling.

# Brick Firm Packages To Stay Competitive

**Unitizing all brick into a package is the only way this dealer can give customer quality and service and maintain a competitive price**

To move 5 to 7 million brick a year in a highly competitive cost-conscious market requires a dealer to provide his customer with a better-than-average product at a competitive price. And when these seven million brick are represented by 17 brick manufacturers making over 300 types of brick, this requirement presents quite a probelm to the dealer.

To solve this problem in the Chicago area, the dealer, Best Bricks, Inc., Hazelcrest, Ill., looked for all practical solutions and determined that packaging of everything that is handled is most practical. Unitizing all the brick into a package was the only way the dealer could give his customers quality and service and still maintain a competitive price and remain in the market.

Quality is achieved because of the minimum handling of the ware resulting in less chippage and broken brick on the job site. Brick are only handled once at the strapping station in the box car itself. From there on lift trucks handle the unitized package. Service is provided by speed of delivery of the brick from inventory in the dealers yard and price is maintained by efficient operation of the first two points, quality and service.

Every brick that is received in the Best Bricks yard is unitized into a standard package. Most shipments from the manufacturers are received by railway car from Texas, Mississippi, South Carolina, Ohio, Pennsylvania, and other leading brick producing states.

During the peak of the construction season, two men are employed by the company to unitize all the brick. Other times of the year, one man is kept busy packaging brick. Each man unloads a boxcar by himself, using two jigs which serve as guides for the packaging operation. One lift truck operator is kept busy taking the strapped brick from the loading station either to inventory or to the delivery truck.

### Strapping Jigs Used

The brick from the boxcar are strapped into packages using the jigs which are placed directly in the boxcar so as to be convenient to the packager. The jigs are also placed so that a lift truck will always have access to the pack. The units themselves consist of five rows of 100 brick each, making the total unitized unit a 500-brick pack. The individual rows of brick can be broken down by cutting the protective cardboard top provided on each pack for easy handling on the job site or scaffold.

The packs are tied with Griplock wire strapping supplied by the C. Tennant Sons & Co. of New York, N. Y. The protective top on the package serves two purposes—it prevents freezing of the pack in the yard and

also serves as an advertising piece for the company since the company's name and message are printed on it. Without the moisture resistant top, salamanders were necessary in the winter to thaw out the load.

Best Bricks maintains a constant inventory of one million brick in their yard. These brick are divided into the 50 best sellers and consist mostly of standard sized units. About four acres of paved area are provided for this inventory space which is used most efficiently for accurate inventory control.

Two rows of each type of brick are maintained at all times. When an order is being moved from inventory, one row is depleted at a time and when this row is completely exhausted, an order is made to the manufacturer to replenish the supply of that particular brick. This method of inventory control is another way of providing the customer with service, in that the dealer always has a large supply of brick in the yard and the type of brick which the customer is most liable to want.

A lift truck removes the tied package from the jig and takes it either to inventory or to the truck delivery area.

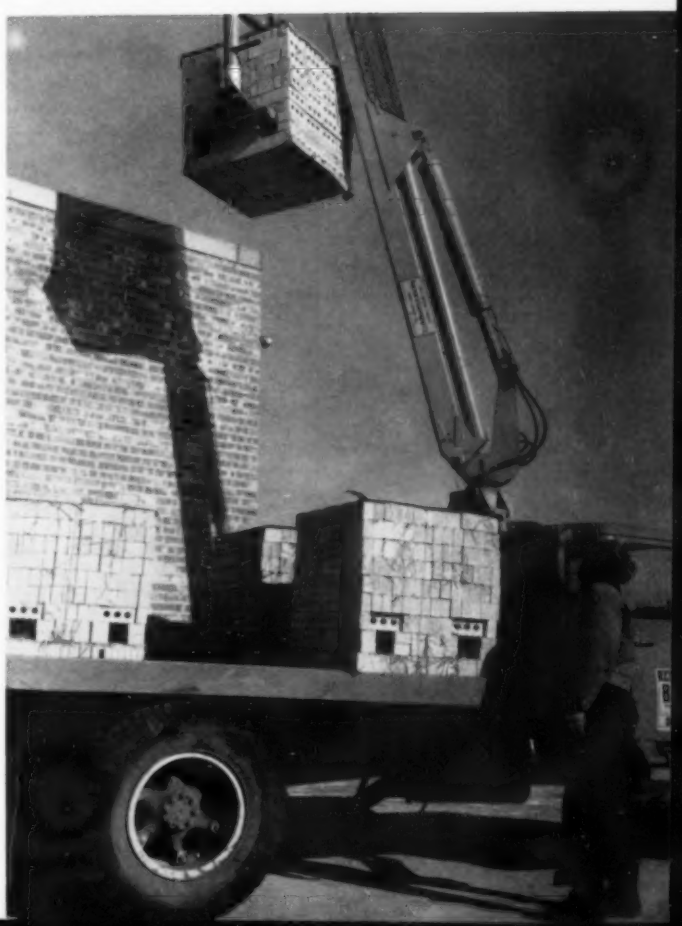
### Brick Sent Directly

From inventory the brick are sent directly to the job by means of a self-loading truck. This truck is equipped with a Teale loader and unloader which is capable of loading its own load. However, to maintain a real efficient operation a Hyster fork lift truck is used to load the truck. A Hyster loads 4000 brick on the truck body in about 5 minutes. The Teale unloader unloads the brick on the job site in a matter of 15 minutes. Utilizing these two pieces of mechanical equipment, one truck is able to deliver 40,000 brick daily.

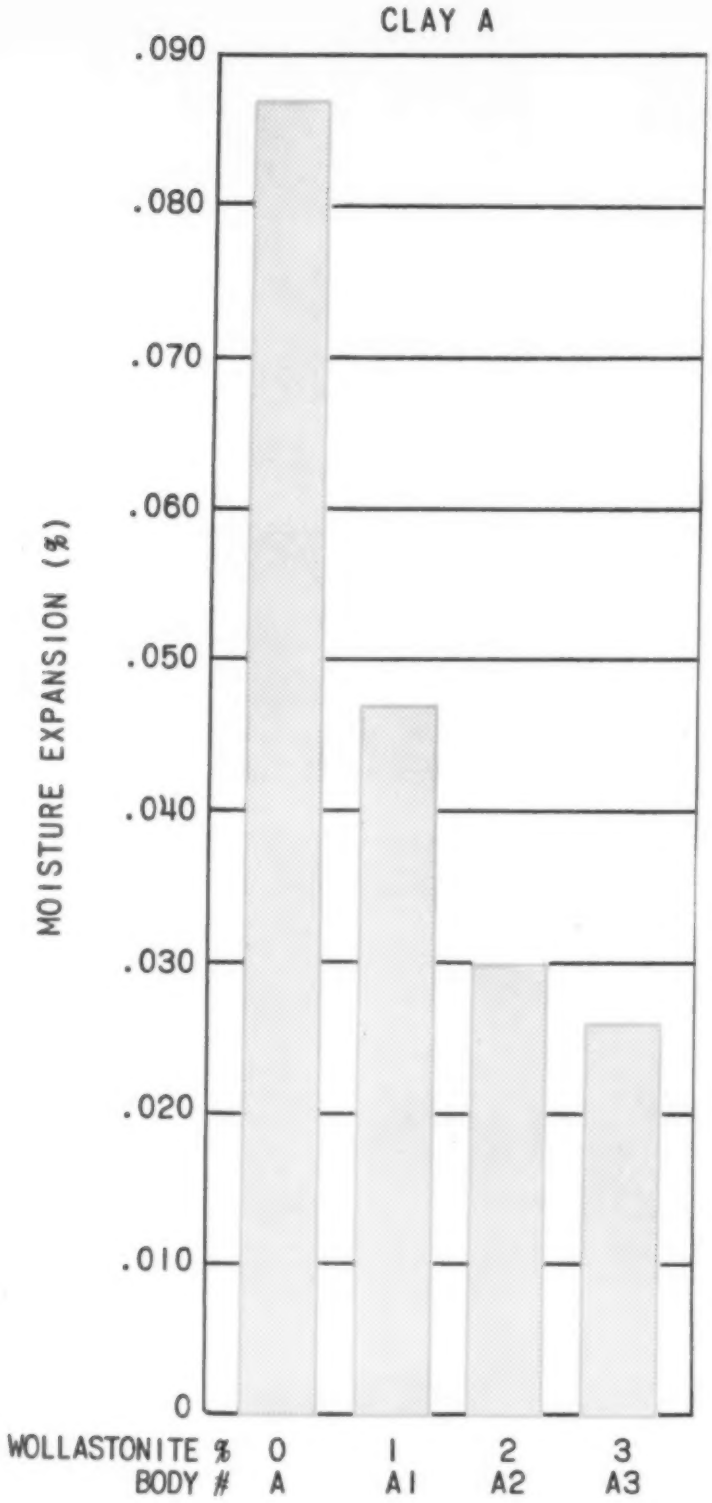
It can then be seen that during the construction season only four men are required in the operation which delivers 7,000,000 brick. Two men are used as cubers, one man is used on the fork lift truck, and the fourth man is used on the delivery truck. During the off season, the lift truck operator is eliminated with the delivery man also operating the lift truck.

Utilizing this system, it is calculated that 24,000 brick per day are handled by each man. Since one man packages 2000 brick per hour and a

(*Continued on page* 86)



The Teale unloader is capable of delivering brick to a second floor scaffolding and with a telescoping boom can deliver brick to a third floor scaffolding.




Graph 1. Moisture expansion vs. wollastonite content.

# Wollastonite

## Long Used in

Wollastonite*, a naturally occurring material, is as old as the Adirondacks from which it comes but is relatively new to industry. In the ceramic wall tile field, the use of wollastonite has become firmly established. But just two years ago the first studies of wollastonite in structural clays were being completed. This was followed by a series of production trials and evaluations. The results add up to savings through reduced losses, lowered costs and improved product quality—a pipe dream come true for a number of plants already using wollastonite.

Wollastonite is a mineral, $CaO\text{-}SiO_2$, and is commercially mined in Willsboro, N. Y. This material when ground is not platy, angular, round or blocky like most ceramic materials; because of the cleavage of the mineral, it breaks down into little needle-like particles. This unique structure accounts for many of the desirable results obtained with the material.

### Performs Two Functions

Wollastonite performs two distinct functions in structural clay bodies. It reduces certain manufacturing losses common to heavy clay units and improves product quality. Only minor quantities are necessary to achieve these benefits; thus adding to the savings which result.

Studies have shown that wollastonite reduces drying and firing cracking losses. Marked reductions in drier losses have been obtained also.

The faster and safer drying possible with wollastonite additions is

*Cabot trademark for this material is Cabo-lite®

# Brings Benefits to Structural Clays

## Ceramic Wall Tile, Material Offers Lower Costs, Better Products

probably due to its needle-like shape. When included in the body, the wollastonite particle creates a jackstraw effect which permits faster escape of water vapor. Freer movement of the water vapor reduces differential shrinkage within the ware, thus reducing the stress created by differential shrinkage. Free escape of the water also reduces the stresses created by the water vapor itself; thus eliminating risk of blowup or cracking. In addition, the needle-like particles act as reinforcing rods strengthening the body.

The reinforcing action of wollastonite increases dry strength from 10—40% as proved in trial production runs, where chipping losses have also been reduced.

Small additions of wollastonite act as auxiliary fluxs in most clay systems. Usually the maximum flux action is obtained with about 3% wollastonite. In this way it is possible to reduce firing temperature or to produce lower absorption (tighter) products. Wollastonite is more active at temperatures above cone 01.

### Improved Product Durability

The ceramic industry has been noted for producing products that withstand the test of time. Durability studies are becoming even more important to understand the role of temperature changes and moisture conditions on ceramic products, and to better utilize these products. Although the mechanics are not yet fully understood, it is a well known fact that most ceramic structural products expand, due to the effects of moisture. Investigations have shown that this moisture expansion can cause structural failures, and commonly cause crazing of glazed units.

As little as 1% wollastonite can cut moisture expansion in half. Further additions bring about further reductions. Low moisture expansion means improved craze resistance in all types of bodies.

The effect of wollastonite on freezing and thawing resistance has not been determined completely in exterior installations, but laboratory studies have shown improved freezing and thawing resistance. Improvement in freezing and thawing resistance might be expected in most products where wollastonite lowers the absorption and reduces moisture expansion.

When added to structural clays such as glazed hollow clay tile or brick, wollastonite is added to the ground clay by a constant feed device. It is usually desirable to blend or mix the body; however, wollastonite is being used satisfactorily commercially where the only blending obtained is in the pug mill.

Some clays have shown higher plasticity, but normally there is no effect on the extrusion characteristics of the clay when only 1 to 3% wollastonite is used. The drying shrinkage may be reduced somewhat, but usually the auxiliary flux action gives slightly higher fired shrinkage. The net result is a product of the same nominal size. The fired strength of the product is usually higher, and impact strength can be decidedly improved.

Wollastonite investigations involving sewer pipe applications are now getting under way. Preliminary studies and the investigations in structural clay products indicate promise in reducing cracking losses and increasing the strength of vitrified pipe. Studies on the reduction of strength deterioration during yard storage are also expected to show favorable results.

TABLE I—BODY PROPERTIES

| | CLAY A | | | | |
|---|---|---|---|---|---|
| Body Number | A | A-1 | A-2 | A-2 | A 3 |
| Wollastonite Addition (%) | 0 | 1 | 2 | 2 | 3 |
| Water Added (% of Clay) | 18.0 | 18.0 | 18.0 | 18.4 | 18.0 |
| (% of Body) | 18.0 | 17.8 | 17.6 | 18.0 | 17.4 |
| Water of Plasticity (%) | 15.6 | 15.3 | 15.2 | 15.9 | 15.5 |
| Plasticity (Penetration in mm) | 8.0 | 7.3 | 7.6 | 8.6 | 7.4 |
| Drying Shrinkage (%) | 5.5 | 5.0 | 5.3 | 5.2 | 5.1 |
| Firing Shrinkage (%) | 3.1 | 3.3 | 3.4 | 3.2 | 3.3 |
| Total Shrinkage %) | 8.6 | 8.3 | 8.7 | 8.4 | 8.4 |
| Dry Strength, PSI | 230 | 265 | 260 | 240 | 320 |
| Fired Strength, PSI | 2900 | 3070 | 3180 | 3320 | 3270 |
| Absorption (%) | 5.2 | 4.3 | 4.0 | 3.9 | 3.8 |
| Moisture Expansion (%) | .087 | .046 | .030 | .029 | .023 |
| Thermal Expansion (30-650°C) | | | | | |
| % Linear | .496 | .469 | .473 | .472 | .472 |
| Coeff. (x $10^{-6}$) | 8.00 | 7.56 | 7.63 | 7.61 | 7.61 |

Left, methods of handling polyurethane were demonstrated in the laboratory. This material is the most recently developed material for the jointing of clay pipe. Above, part of the group of 75 attending the meeting inspecting the strain gauge technique being developed at the lab to determine the backfill loads that are exerted on jointing material.

## NCPMI Discusses

# How to Test Coupling Materials

The first technical meeting since the expansion of the clay pipe industry's research program was held recently by National Clay Pipe Manufacturers, Inc., at Chicago and Crystal Lake, Ill. The 75 participants in the 2-day meeting heard reports on a number of research projects now underway and in the planning stages, discussed their individual efforts to ease handling and manufacturing problems of factory-made joints, and inspected the association's research facilities.

The meeting—held the first day at the Crystal Lake laboratory and the second day at the Sheraton Towers Hotel in Chicago—was attended primarily by production, engineering and research personnel in the vitrified clay pipe industry. The meeting was sponsored by the Research Division of NCPMI.

For the all-day session at the NCPMI laboratory, the visitors were divided into groups to facilitate the informal discussions that were held during the tour of the laboratory. They saw a demonstration on methods of handling polyurethanes, the most recently developed material for the jointing of vitrified clay pipe. The testing procedures used on experimental plastic materials for the jointing of pipe were shown and discussed as well as some of the newer plastic materials that are being studied.

Also demonstrated was the strain gauge technique being developed to determine the backfill loads that are exerted on the pipe and on th jointing material under various field conditions. The weather cooperated sufficiently so that it was possible for those attending to observe the projects that are being studied outside the laboratory. Included was a viewing and discussion of the 300 ft. long pipelines which have been erected on a scaffolding for studies of the hydraulic flow properties of various piping materials.

### Projects Demonstrated

At the meeting in the Sheraton Towers Hotel, the various projects which were demonstrated the day before were discussed in detail by the NCPMI research staff. Gordon G. Gabel, research engineer in charge of plastics research, discussed his work on the development of new jointing materials. His report included the latest test results on the physical properties of various plastic materials which show promise for the jointing of vitrified clay pipe. In his discussion, Gabel emphasized the fact that, while all materials of interest are being studied, the major effort is being placed on the reduction in cost of the final product.

### Backfill Load Analysis

Chester Keeney, NCPMI research engineer, discussed his work on the strain gauge analysis of backfill loads exerted on the pipe and on the jointing materials under various field conditions. S. A. Bortz, of Armour Research Foundation, a consultant on this project, pointed out the basic theories involved in strain gauge analysis and explained how these are being adapted to this particular problem. Keeney also discussed his work on hydraulic studies relating to vitrified clay pipe with particular emphasis on the mathematics involved in these studies and the significance of the various mathematical factors in the final results.

Raymond W. Parker, a ceramic engineer and recent addition to the NCPMI staff, discussed his work on methods of testing vitrified clay pipe.

*(Continued on page 90)*

# See Big Boost in Brick and Tile Use

**Region 4's second annual clay industry sales conference brings forecast of substantial increase in use of brick and tile during 1961. Call for efforts to capitalize on improved market situation**

Forecasts of a substantial increase in the use of brick and tile during 1961 headlined the Second Annual Clay Industry Sales Conference sponsored by Region 4 of the Structural Clay Products Institute in Canton, O. recently.

More than 200 brick and tile dealers and manufacturers, mason contractors and officers of the Bricklayer's, Mason's and Plasterer's International Union came to the meeting from Ohio, Michigan, western Pennsylvania and West Virginia. The conference followed the annual meeting of Region 4-SCPI, whose membership includes 25 brick and tile producers.

### United Industry Planned

Executive James R. Platt planned and directed the program, assisted by Region 4 field engineers from Cleveland, Columbus and Pittsburgh. Platt opened the sales conference by stressing the need for all branches of the industry to unite to meet competitive products. The manufacturers, dealers, contractors, bricklayers and unions must all work together to successfully meet competition. Platt pointed out the who, how and where of competition and pointed out that the competitive products are here to stay and that the clay products industry must create new markets for any increase in the use of its products.

These new markets include the home remodeling field, a market with a 20-billion dollar potential, which the clay products industry should concentrate on. The industry is especially interested in brick veneering on this type construction, and the industry is going to make a concentrated effort to get their share of this market which up to now it has failed to achieve.

### Big Market for RBM

Reinforced brick masonry offers a tremendous market for the brick industry in retaining walls, decorative structures, swimming pools, and since this construction is water retaining, RBM will also have application for reservoirs and sewage systems. The RBM retaining walls are competitive pricewise with reinforced concrete and certainly more attractive. The industry should do everything possible to promote this type of construction.

Urban renewal will create an even greater market for brick and tile than has existed in the past and indications are that, with 2 billion dollars already allocated for land which means 10 to 15 billion dollars worth of construction, the urban renewal program will lead to a 100 billion dollar project.

The number of cities using urban renewal projects will grow from the present 400 to more than 4000 in the next five years, Platt predicted. However, he warned, competition is also after this construction dollar and the clay products industry must work hard to get its share.

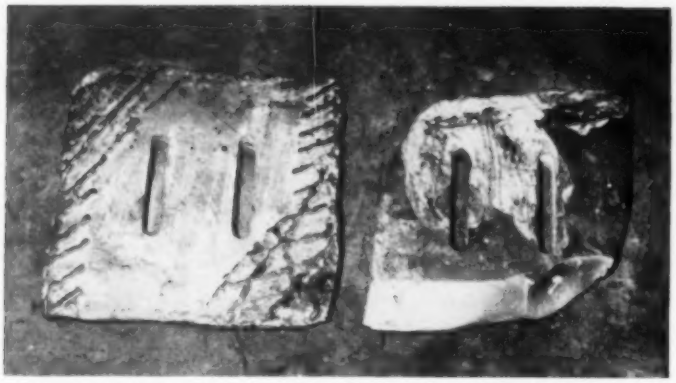
### Everyone in Promotion

Promotion of clay products with every one aiding in the promotion was stressed by Platt, dealers, distributors, contractors, unions and manufacturers working together will achieve the desirable end result—more business for all.

Platt then pointed out how Region 4 was going about achieving this end result. A progressive advertising campaign is being started by the organization in regional editions of nationwide magazines. The advertising will be aimed at the consumer to make him more conscious of brick and tile and the advantages of this type construction. In addition to the direct advertising, merchandising ma-

(*Continued on page* 84)

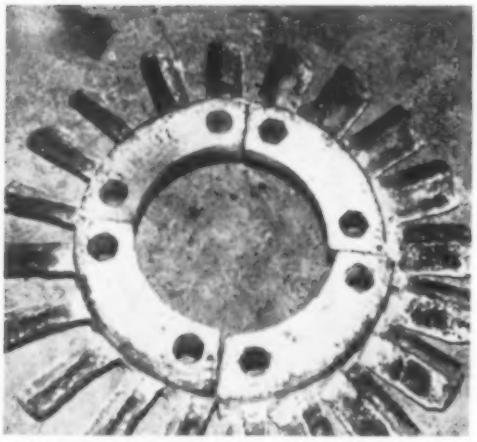
George Miller (center), executive director of MCAA, points out some facts about the apprentice training program to Edgar Baker (left) and John Lodge, BM & PIU officials at the sales conference.



**MULLER PLOWS**—*Note how Tube Borium (left) has retained corners and size under severe abrasive action.*

# *"What...* **TUBE BORIUM*** *cheap at $5.00 per pound?"*

**AUGER PADDLES**
*Tube Borium keeps paddles out to size, improves auger efficiency in moving wet clay.*



**SHREDDER KNIVES**—*A small deposit of Electric Tube Borium keeps knife edges sharp and straight.*

Some people buy hard-facing metals strictly on price. Real economy is measured—not in first cost—but in results. That's why TUBE BORIUM is cheap at almost any price. TUBE BORIUM virtually defies wear. It not only outlasts all other hard-facing alloy types on applications involving straight abrasion but eliminates downtime usually required for maintenance. With negligible downtime valuable production is saved. In addition to lower cost of operation you'll notice all equipment produces at a higher rate because parts keep original size longer, retain operating efficiency!

One of your biggest investments in any hard-facing program is not the alloy used but the welding time expended. It takes no longer to apply the best alloy than the cheapest—but results are beyond compare. Next time try Stoody TUBE BORIUM. In the long run, you'll find it more economical—even at $5.00 per pound!

*TUBE BORIUM is pure Tungsten carbide particles encased in mild steel tubes. Abrading surfaces protected with Tube Borium slide on a layer of tungsten carbide, the most wear resistant metal known. Available in a wide range of mesh sizes for acetylene or arc application; also in wires for automatic and semi-automatic electric welding machines.

## STOODY COMPANY

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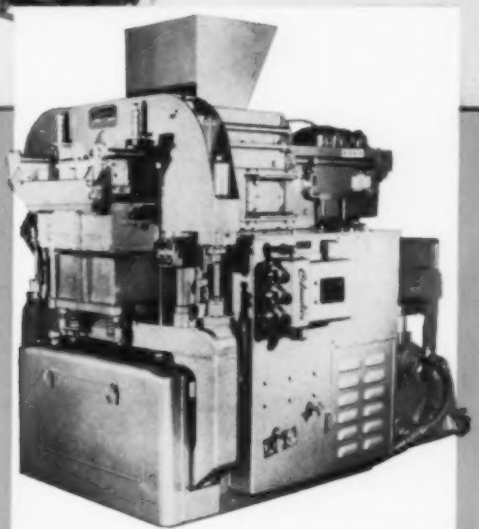

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# OFFICIAL PROGRAM

# Second Clay Block Conference

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## Palmer House, Chicago, Ill.—March 23-24, 1961

**Thursday—March 23**

**Red Lacquer Room—Palmer House**

8:00 A.M.—Registration.

9:00 A.M.—"Introduction & Statement of Purpose," J. J. Svec, Publisher, BRICK & CLAY RECORD.

9:15 A.M.—"Types of Aggregate Suitable For Clay Block Manufacture," G. C. Robinson, Clemson College, chairman. Panel members: Robert Taylor, director, Structural Clay Products Research Foundation; Charles Goodman, president, Material Service Corp., representing Expanded Shale, Clay & Slate Institute; Ron Hardy, Ludowici-Celadon Corp., representing Expanded Clay & Shale Association; Henry K. Burns Jr., Burns Brick Co.

10:45 A.M.—"Forming Clay Block," Dr. W. C. Bell, North Carolina State College, chairman. Panel members: L. Arthur Lassman, Benjamin Lassman & Son; Robert Poole, Chisholm, Boyd & White; Karl Nensewitz, Besser Machine Co.; Norman Small, Columbia Machine Co.; Harold Lamb, Crossley Machine Co.; James Hanson, president, Mineral Wells Clay Products.

12:00 Noon—Luncheon, Red Lacquer Room.

2:00 P.M.—"Firing Clay Block," Neal F. Mohler, BRICK & CLAY RECORD, chairman. Panel members: Boyd Miller, Miller Equipment Co.; L. B. Coffin, Alfred University; Dean Tinker, Ohio Kilns, Inc.; Owen Cross, Swindell Dressler Corp.

3:30 P.M.—"Glazing Clay Block," Dean J. F. McMahon, Alfred University, chairman. Panel members: Bert Buehler, Cleveland Builders Supply; Joshua Lowenfish, New York State Housing Authority; George Pixley, Pelm Research, Inc.

**Friday—March 24**

**Red Lacquer Room—Palmer House**

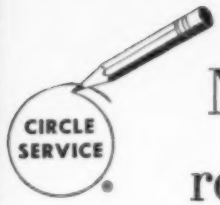
9:00 A.M.—"Locatelli Press For Forming Clay Block," Louis Garlone, Kelsey-Ferguson Brick Co.

9:30 A.M.—"The Burnite Process For Manufacturing Clay Block," Wm. H. Burnette, Wm. H. Burnette & Associates.

10:30 A.M.—"How To Get In The Block Business," Neal F. Mohler, BRICK & CLAY RECORD.

11:00 A.M.—Architects & Contractors Discuss Clay Block. Earl Benedict, Architectural Editor, *Building Construction*, chairman.

12:00 Noon—Luncheon, Red Lacquer Room.

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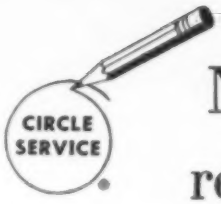


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*Firing Heavy Clay Products—Part VI*

# Improve Your Firing Of Heavy Clay Products

This is the sixth part of a series of articles on firing heavy clay products by Seanor. Previous installments appeared in Brick & Clay Record in June, 1960, page 99; July, 1960, page 46; September, 1960, page 76; January, 1961, page 86; February, 1961, page 50. These articles continue in consecutive issues.

By J. GEORGE SEANOR

Outmoded tradition is a terrible handicap in connection with attempts to improve the firing of heavy clay products, especially on building products plants. Refractory plants use better technology both on down draft periodic kilns and tunnel kilns. The late Professor C. F. Binns simply would not discuss kiln firing with building brick plant operators because, he said, that these brickyards were so fanatically entrenched in their traditions that there was no use in suggesting good technology to them.

Doctor Carruthers, of the Ohio State Ceramic Department, points out that the pattern of the setting in a kiln is a part of the kiln's design, and that results from an otherwise well designed kiln can be handicapped by improper setting.[1]

[1]Carruthers, J. L. *Newsletter*, Ohio Ceramic Industries Association, Vol. 21, No. 2, Feb. 24, 1950.

Knowing full well, from past experience, that it will irritate many traditionalists, this writer again, here, in writing, states that the setting of most heavy clay products kilns (periodic or tunnel) is traditional; and not in accordance with good technology in the transfer of heat from gases (kiln gases) to solids (brick); nor does it follow good technology in the chemical treatment of solids (brick) by reaction with hot gases (kiln gases) as for example in the oxidation of carbon and sulphur from the brick.

### Circulate Kiln Gases

The writer also knows full well that traditionalists will refute the above paragraph by pointing out that some time or another they have applied a high-draft fan to a conventionally designed and traditionally set down draft kiln, and speeded up the firing cycle with a fuel cost reduction. Therefore, they argue, that it it merely a matter of the volume of kiln gases that you circulate through the kiln, and the greater the volume the better.

High draft fans are a means of doctoring a symptom of poor over-

(*Please turn page*)


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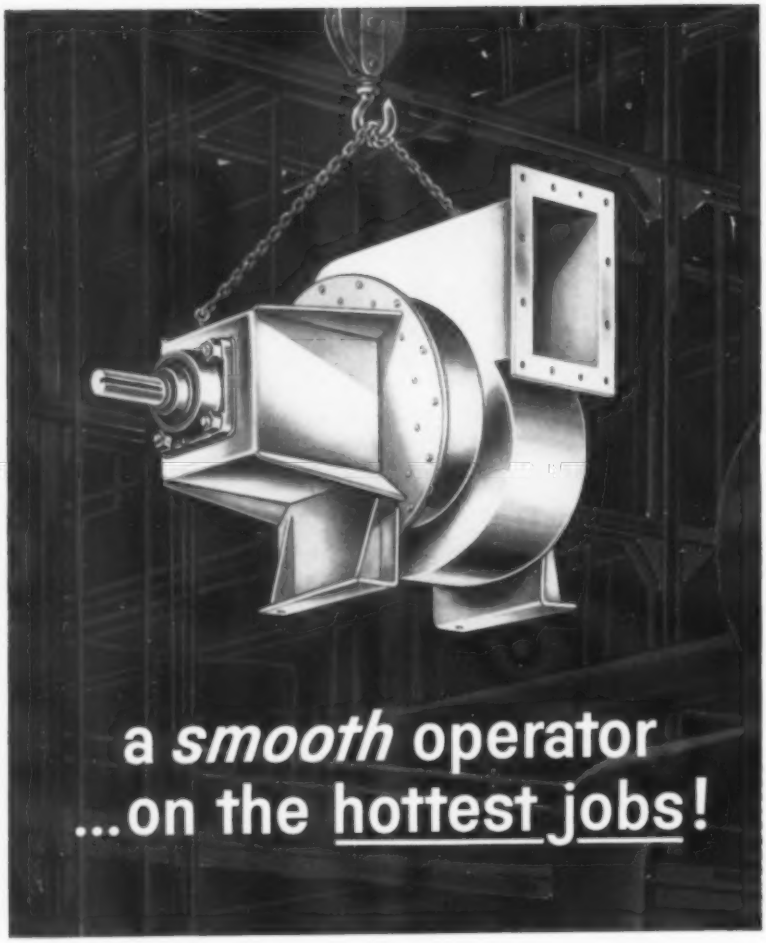


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all kiln design (including the setting) and are not needed on a well designed kiln. The volume of kiln gases in kiln firing is important; but what is more important is how they circulate through the brick in the setting pattern.

In evaluating the factors in this problem, one should keep in mind the truth of Doctor Carruther's statement that the setting pattern is part of the kiln design. If the total kiln design of the kiln's components, plus the setting pattern, are poor, the circulation of a greater volume (and excessive volume) of kiln gases through the kiln system may improve the firing process.

### Endorsement Attempted

Advocates, and evangelists, of high draft descend upon us in cycles, despite the evidence to the contrary. Many years ago this subject was getting a lot of attention from heavy clay products down draft kiln operators. One enthusiastic disciple, at a meeting of the American Ceramic Society, attempted to get endorsement of his claims from some of the leading ceramic engineers of the day. Stull stated, at that time, "There is no question but what forced draft is of great assistance in certain cases especially where the kilns are improperly designed, as to proportions, grate area, and so forth."[2]

In the same discussion, page 915, the late Prof. Binns, evaded a yes answer to the enthusiast, so as not to offend him, by stating "I think we are apt to get into trouble by mistaking the matter of draft and considering it inversely. We are apt to think of draft as suction, whereas draft is really nothing but pressure. If we think of it from that point of view we shall get more light on it".

Most of the brick men attending this discussion, not being accustomed to thinking in terms of absolute pressure did not get the significance of Prof. Binns' statement.

### Mysteries and Myths

Many of the mysteries and myths of draft are illuminated when we think in terms of absolute pressure instead

(*Continued on page* 80)

[2]Stull, R. T. "Discussion of Artificial and Natural Draft in Downdraft Periodic Kilns" *Journal*, American Ceramic Society, Volume 3, pp. 915-916.

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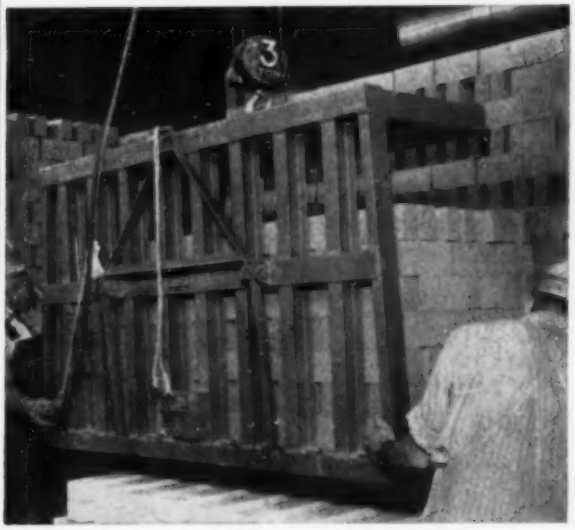

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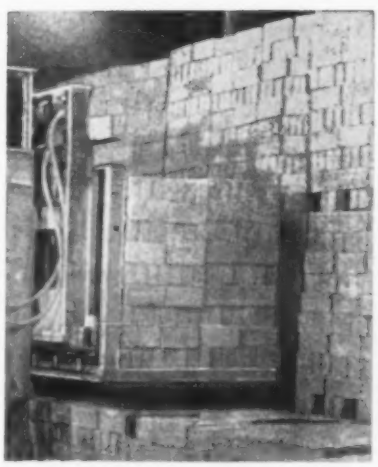

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## Improved Firing . . .

(*Continued from page* 78)

of up, or down, from a constantly varying atmospheric pressure. There is no draft if absolute pressure is used in calculations; and the pressure-heads which are responsible for the movement of gases from one point to another become understandably clear.

### Circulate a Greater Volume

If the combined design of a kiln—the design of the kiln components and the setting pattern—is poor you can often secure some improvement in results by circulating a very great volume of kiln gases through the kiln. High draft fans will enable you to circulate a greater volume of kiln gases through the kiln.

On the other hand, rather than to install the high draft fan, and thereafter encounter its cost of upkeep, plus the cost of electricity to run the fan—which should be added to the cost of kiln fuel—it would be more profitable to search out the defects in the design of the kiln's elements, or in the setting pattern, and correct them.

For example, refer, again, to Table BA. (Editors Note: Table BA appeared on page 51, February, 1961 *Brick & Clay Record*). Note that in firing of kiln 2A 114,149,096 cu. ft. of combustion gases (including the excess air) were circulated through the kiln during this firing cycle, and note that in the firing of kiln 2B, 86,078,663 cu. ft. of combustion gases (including excess air) were circulated through the kiln during the firing cycle. Note well that 28,070,433 fewer cu. ft. of gases were hauled through 2B than were hauled through cycle 2A. Or, the volume of gases required to fire 2B was about 75% of the volume required to fire 2A.

Note also that in firing 2A 100,823 lbs. of coal were used; and that only 86,102 lbs. were used in firing 2B. Cycle 2B made a saving of 20% in the fuel. Also 2B was fired in 25% less time than 2A. According to the official firing report "there was no appreciable difference in the quality of the brick from the two burns."

The reason why the burn 2B was faster and more efficient than burn 2A was attributed to the difference in the way the kiln was handled. It is very significant, however, that between burns 2A and 2B one of the defects in the kiln's design was partially corrected by the ceramic engineers under Doctor Bole, i.e., the ridiculously small cross sectional area of the flues into the multiple stacks was enlarged, as much as possible. This enabled better practice in firing 2B.

### Maximum Draft

It is significant that the maximum draft during the firing of 2A was about .175" and that the maximum draft during the firing of 2B was about .14", or 20% less. Since 2B used less coal and was fired in less time than 2A—with less draft—this is somewhat confusing to the advocates of high-draft.

It gives evidence, however, that by proper attention to design detail of a kiln, high-draft is not needed; and that high-draft fans are not a substitute for correct design.

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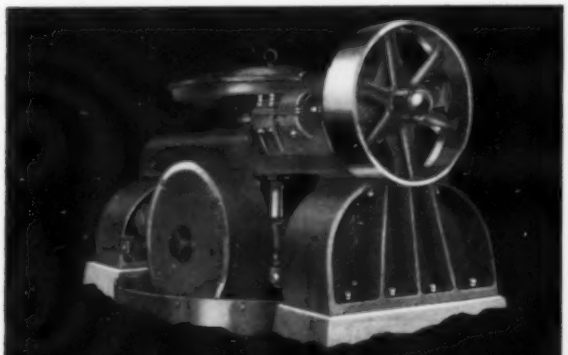

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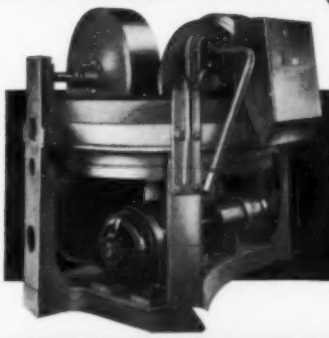

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## Pacific Clay . . .

(*Continued from page* 64)

then transported via overhead crane to storage bins. From the bins, the clays then move by conveyor belt through the dry pan screens to ground storage bins adjacent to each processing unit.

In the pug mills the clay is carefully tempered with water and then delivered to the vertical hydraulic press and the horizontal extrusion presses for forming into sewer pipe or multiple duct conduit.

### Company Designs Press

Pacific Clay Products extrudes its larger sized vitrified clay sewer pipe (15" through 42") from a vertical hydraulic press. This press was designed by company engineers, and was the first such unit in use in the industry.

The 4" through 12" diameter pipe is extruded on the horizontal presses, this method being adopted by Pacific prior to 1950. It has since become a common procedure in the vitrified clay pipe industry, and development and refinement of this method of extrusion has reached a high degree of perfection at Pacific Clay Products. The pipe is arranged automatically on pallets and then moved by lift truck from the extrusion machines to the drying areas.

This plant was probably the first vitrified clay sewer pipe plant to use the one floor flow production principle. All of the driers are on a single floor which eliminates the necessity of moving pipe to different levels.

### Handling Branched Fittings

One of the slowest and hardest processes to mechanize in a vitrified clay sewer pipe plant is the production of branched fittings such as wyes and tees. Pacific Clay Products has speeded up the production of these fittings through the use of modern assembly-line techniques. The fabrication of wyes and tees and other fittings such as increasers, reducers, etc., has been put on a production line basis where several men are involved in the making of each fitting, with each man having a different and distinct task to perform. With this method of fabrication, the quality of branched and special fittings has been improved and costs have been lowered.

### Controlled Driers Used

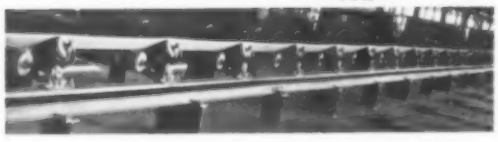
Temperature and humidity controlled driers are used to speed up the drying of large diameter pipe. These driers, operating on a fast drying cycle and using controlled humidity, operate safely and efficiently. Special driers have been built for pipe of 33" diameter and larger. At the time this story was written, such a drier was loaded with 33", 36", and 39" diameter pipe.

The first tunnel kiln was installed at the Santa Fe Springs plant in 1946. In 1957, a second and larger tunnel kiln was added which further boosted production. The current level, in excess of 10,000 tons monthly, was achieved by the addition of the four new large periodic, down-draft kilns in 1959.

The first tunnel kiln built is approximately 340 feet long. The newer tunnel kiln is 400 feet long. The

(*Continued on page* 84)


*Profitable* MATERIAL HANDLING *with* EHRSAM



BELT CONVEYOR

The Ehrsam line of Conveyor Rolls fills a definite demand for a conveyor that will combine dependable high performance with low maintenance cost for maximum profit. Ehrsam Conveyor Rolls are available in any belt widths with many styles and heights. For additional information write Department B for your catalog 2-A.

TRIPPERS

The Ehrsam Tripper is designed for top performance. It is easily serviced. Most working parts are accessible, yet protected for the operator's safety. All spouting is engineered to give full capacity discharge. Many styles of trippers are available, and can be designed to suit your special application.

The J. B. Ehrsam and Sons Mfg. Co.
Enterprise, Kansas

SALES OFFICES:
KANSAS CITY, KANSAS
PHOENIX, ARIZONA
CHICAGO, ILLINOIS
SAN FRANCISCO, CALIFORNIA
HASTINGS, NEBRASKA
FORT WORTH, TEXAS
GOLDEN, COLORADO

Circle Service No. 53

0.2% N Silicate liquefies stiff clay mud.

## For Fluidity, Use N SODIUM SILICATE...

Sodium silicates are economical dispersants and deflocculants. They are widely used as additives for natural earths.

When water content must be kept to a minimum, silicate is the convenient, effective liquefier; for example, the preparation of slips for casting, molding and coatings, in slurries, in clay processing, in the dispersion of pigments and minerals.

PQ specializes in soluble silicates and can fill your requirements for either dry or liquid silicates. The benefit of our century's experience in silicate manufacture and use is available to you.

**1831-130th Anniversary-1961**

Soluble PQ Silicates

**PHILADELPHIA QUARTZ CO.**

1148 Public Ledger Bldg. • Philadelphia 6, Pa.

Associates:
Philadelphia Quartz Co. of Calif., Berkeley & Los Angeles, Calif.; Tacoma, Wash.
National Silicates Limited, Toronto, Canada

**9 PLANTS • DISTRIBUTORS IN OVER 65 CITIES**

TRADEMARKS REG. U.S. PAT. OFF.

**Circle Service No. 54**

# INCREASE YOUR CONVEYOR CAPACITY 30%!

**PEKAY**
## *M-T-MATIC*
**BUCKETS**

Pekay M-T-Matic Buckets prevent the sand and gravel build-up in conventional buckets which robs your elevator conveyor of 30% or more of its capacity. A separately mounted stripper plate, replacing the back of one-piece buckets, efficiently dislodges even frozen materials. Your M-T-Matics stay clean, ready to pick up a full load every trip!

Besides full-load savings in time and money, M-T-Matics have long life. Hard wear-and-tear cleaning by pounding and prying is avoided. M-T-Matics also reduce conveyor belt wear by forcing the belt to follow the contour of the pulley. This avoids the lifting and stretching action which takes place when conventional buckets are used.

Pekay M-T-Matics are easily installed on any belt or chain elevator and are available in all standard sizes. Mail coupon for full information.

**HERE'S HOW IT WORKS...**
As the M-T-Matic reaches the head pulley, the stripper plate moves around the radius independently of the bucket mounting. This automatically forces the stripper plate outward two to three inches in a lever-like action which loosens the contents. As the bucket follows over the top of the pulley, the **entire** load is emptied — not just a portion which gets smaller every trip.

**MAIL THIS COUPON FOR DETAILS**

**PEKAY MACHINE & ENGINEERING COMPANY, Inc.**
2510 West Lake Street, Chicago 12, Illinois

Please send me information and prices on your M-T-Matic Buckets.

Name_____

Company_____

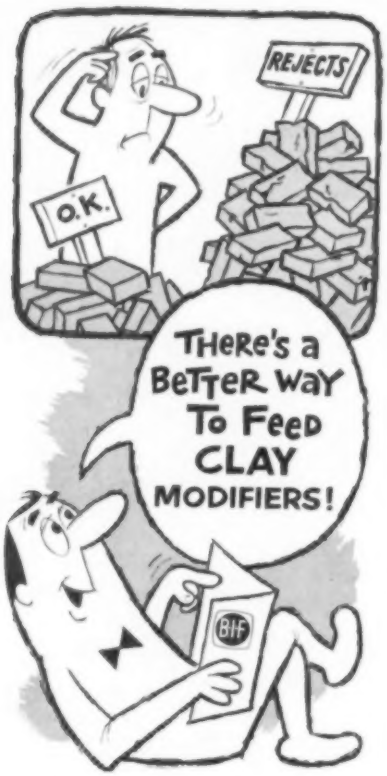
Address_____

City_____ Zone____ State_____

Bucket Size_____

**Circle Service No. 55**

BIF POSITIVE CONTROL OF MATERIALS FLOW




Wasting coloring agents, body conditioners, flocculents, binders and fluxes? Getting too many rejects? Production costs too high? Profits low? B-I-F feeders proportion brick and clay process materials . . . continuously . . . automatically . . . with the accurate reliability to suit the most rugged service demands!

## Free Facts

B-I-F continuous feeders . . . fully integrated into vital phases of your operation . . . speed production, improve product quality, reduce waste and increase net profits. Write for free facts today!

BIF Industries

BUILDERS-PROVIDENCE • PROPORTIONEERS • OMEGA
407 HARRIS AVENUE, PROVIDENCE 1, RHODE ISLAND

Circle Service No. 56


(Continued from page 82)

latter, at the time it was built, was the largest tunnel kiln in the industry.

List of Suppliers

| | |
|---|---|
| Polyurethane | A.D.M.<br>Coast Pro. Seal<br>Minnesota Mining<br>Reichhold Chemical |
| Polyvinyl Chloride | Polyresins Co., Los Angeles<br>Lorado Products, Los Angeles |
| Silicone Mold Release | Dow Corning |
| Tunnel Kiln #1 | Allied Div. of Ferro Corp. |
| Tunnel Kiln #2 | Swindell-Dressler Corp. |
| Horizontal Pipe Extruder | Pearne & Lacy |
| Vertical Press | Pearne & Lacy |
| Pug Mill | J. C. Steele<br>Fate Root Heath |
| Delivery Trucks | Auto-Car<br>Peterbilt<br>Ford |
| Trailers | Utility<br>Fruehauf |
| Conveyors | Stephens-Adamson<br>Link-Belt |
| Feeders | Syntron |
| Barium Carbonate | Braun Chemical<br>Wesco Chemical |
| Crusher (Jaw Crushers)<br>(Grog Grinder)<br>(Tooth Roll)<br>(Tipple) | Cedar Rapids<br><br><br>Stephens-Adamson |
| Roll Crushers<br>(Grog Crusher) | Allis Chalmers |
| Front End Loader | Hough Payloader |
| Screens | Star Foundry |
| Humidity Dryers | Lanly |
| Indexing Machine (4" processing) | Pearne & Lacy |
| Hydraulic Cylinders | Tompkins Johnson, Jackson, Michigan |
| Fans | Robinson |
| Overhead Conveyors | Jervis B. Webb |
| Oven Burners | Eclipse |

## Region 4 . . .

(Continued from page 71)

terials will be presented to dealers, stressing beauty, economy and permanence of clay products. In addition to all this, TV and billboard advertising will be utilized, again aimed at the consumer.

Creative selling was discussed and the various methods by which clay products could be sold were mentioned. The use of photographs to illustrate the beauty and the techniques used in clay construction was promoted by Jack Sterling, head of the Photographic Department of Region 4.


## CERAMICS AND CLAY PRODUCTS BOOKS . . .

Available on order from the publishers of CERAMIC DATA BOOK, CERAMIC INDUSTRY, BRICK AND CLAY RECORD, other business papers and technical literature

**CAHNERS PUBLISHING CO.**
**5 South Wabash Avenue, Chicago 3, Ill.**

CERAMIC GLAZES—by C. W. Parmelee—($8.00.)

CERAMIC TESTS AND CALCULATIONS—by Dr. A. I. Andrews—(172 pages, $3.75.)

CHEMICAL ENGINEERS HANDBOOK—Prepared by a staff of specialists, John H. Perry, editor in chief, E. I. du Pont de Nemours & Co. ($21.00)

DRYING CERAMIC PRODUCTS—by A. F. Greaves-Walker—($4.00.)

DRYING CLAY WARES—by Ellis Lovejoy (166 pages, $4.00.)

ELEMENTS OF CERAMICS—by F. H. Norton—(246 pages; $9.50.)

FUNDAMENTALS AND ECONOMIES IN THE CLAY INDUSTRIES—by Ellis Lovejoy ($61 pages, $6.00.)

HIGH TEMPERATURE TECHNOLOGY—by I. E. Campbell—($15.00.)

INDUSTRIAL FURNACES (Vol. II)—by W. Trinks (405 pages, $10.00.)

LITERATURE ABSTRACTS OF CERAMIC GLAZES—by J. H. Koenig & W. H. Earhart—(395 pages; $5.00.)

OPERATING THE TUNNEL KILN—by J. T. Robson—(150 pages, $8.00.)

POWDER METHOD IN X-RAY CRYSTALLOGRAPHY, THE—by Leonid V. Azaroff ($8.75.)

REFRACTORIES—by F. H. Norton (798 pages, $14.00.)

REFRACTORY HARD METALS—by Schwarzkopf & Kieffer—(447 pages, $14.00.)

The Story of Lt Wt Clay Aggregate 50c

Practical Aspects of Clay Products Drying 35c

---

**USE THIS HANDY COUPON WITH YOUR REMITTANCE**

Brick & Clay Record, Book Dept. BCR-3, 5 So. Wabash Ave., Chicago 3, Ill.

☐ Enclosed is $..... to cover the cost of the following:

NAME .....

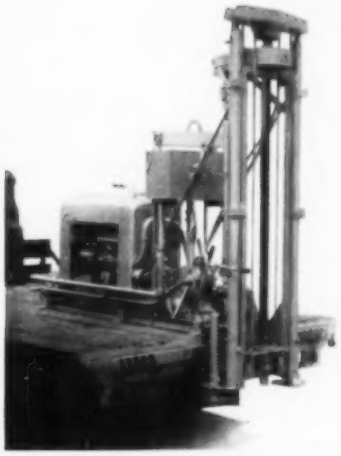
ADDRESS .....

CITY ..... ZONE ..... STATE .....

# Parmanco

**SPECIALISTS IN AUGER TYPE DRILLS**

## NOW . . . GREATER DRILLING POWER



**MODEL F-86B**
Mounts on any ½ ton or larger truck

**A DRILL THAT DOES THE JOB FASTER AT LESS EXPENSE TO YOU!**

- Full 6′ twin hydraulic cylinder feed for faster drilling and more pulling power.
- Simplified control. All controls are centralized at rear of drill.
- Time saving clutch. Three speed independent transmission and 10″ spring loaded truck clutch.
- Auger drills to 100 feet.

***Complete information on request.***

**MODEL F-86**
Jeep mounted

**PARIS MANUFACTURING COMPANY**
**PARIS, ILLINOIS**

Circle Service No. 57

# JIFFY-LIFT CAN TRIPLE YOUR DELIVERIES DURING PEAK PERIODS!

**Users all over the country report that Jiffy-Lifts earn their own way—and then some.**

Jiffy-Lift's efficient engineering and ease of operation insure years of economical, trouble-free service, and make the loading and unloading job as rapid and as easy as possible. You can actually cut your delivery time to one-third over outdated methods. Easily installed and maintained, the Jiffy-Lift is your answer to loading and unloading problems.

- Four Wheel Drive . . . reduces slippage, safer to load and unload on an incline, fast, smooth operation.
- Automatic Trip Release . . . raises cradle while driver readies next cube, automatically stops.
- Four Cable Suspension . . . eliminates swinging, permits lifting 10,000 pound loads with ease.
- Dual Controls . . . may be operated from either side of truck.

JIFFY LIFT

*For Complete Information, Write, Wire, or Phone today!*

**ELBERFELD Manufacturing Co., Inc.**
Elberfeld, Indiana, U. S. A. • Telephone 131

Circle Service No. 58

SILANEAL®
keeps brick clean
SILANEAL
keeps brick clean
SILANEAL
keeps brick clean
SILANEAL
keeps brick clean
SILANEAL
keeps brick clean
SILANEAL
keeps brick clean
SEE
PAGES
24 &
25

Circle Service No. 59

## New Plant . . .

(*Continued from page 60*)

colors as well as practically every texture of brick being currently produced.

Charles Gaddis, plant superintendent, together with Humphrey has been incharge of the machinery installation. Design and construction were handled by personal of Nebraska Brick and associated companies.

Demolition work, involving the old periodic kilns and driers started as soon as the new plant went into operation. The space thus cleared is scheduled to have the relocated rail spur and modern truck loading docks as well as additional storage space.

## Best Brick . . .

(*Continued from page 67*)

second man delivers 4,000 brick per hour, two men are used to package and deliver 6,000 brick per hour or 3,000 per hour per man. With an 8-hour day, it is then possible to handle 24,000 per day per man.

The Teale unloader on the truck is equipped with a remote unit for portable handling of each brick pack. The unit will unload any amount of brick on a particular site and will even unload brick to the second floor scaffold. With a telescoping boom the unit is made so that it is possible to unload brick on the third floor of the building under construction. It is also capable of unloading on either side of the truck.

### Receives Better Brick

Advantages of the packaged brick to the customer are obvious. The company personnel stress the thought that a satisfied customer is the best advertiser for the dealer. The contractor is well pleased with the packaged brick which he is getting from Best Bricks, Inc. When a contractor places an order to the dealer he knows exactly what he is getting as far as the amount goes. The contractor in some instances has actually used less brick on the job site because of the smaller amount of breakage which is usually high with manual unloading.

Bernard R. Arquilla is president of Best Bricks, Inc. assisted by Ed. Barnard, sales manager of the company.

*no more downtime to replace connectors...*

HANCO FLUX POWER SCREEN HEATERS
*transmit power through the air!*

With the all new Flux Power by Hanco all mechanical connections between transformer and screen are eliminated. The 0 to 4000 ampere current is transmitted through the air by inserting a conductor through the eye of the transformer. This permits unrestricted vibration, maximum power transmission and true screen balance.

5 YEAR GUARANTEE

★ Dust-tight, waterproof construction
★ Dual voltage, 220/440 volt
★ Use either plain or stainless cloth
★ Anti-magnetic steel side rails

*write today for full details:*

HANCO INTERNATIONAL
CANTON 7, OHIO, U. S. A. — CABLE HANCO

*EUROPEAN SALES AND MFG.*
HANCO INTERNATIONAL
6 WIBAUTSTRAAT • AMSTERDAM, HOLLAND

Circle Service No. 66

# new markets! new profits!

*with "hand dressed"*

# BRICK

## by PITCHMASTER

NEW AND REVOLUTIONARY IN DESIGN! TESTED AND PROVEN

Names of satisfied users furnished on request

$4000.00
F.O.B. FRANKFORT, INDIANA

Here is a machine that incorporates the skills of the craftsman with more production muscle than twenty men.

***Reach NEW markets, NEW profits by offering a NEW brick with greater depth of beauty.***

- Culled brick can be converted to premium priced material.
- Fifty lineal feet of "Hand-Dressed" brick per minute.
- Instant adjustment to material height and depth of pitch. No limitation on material length.
- All material is conveyed through machine in a continuous flow by belts and rollers. Machine maintenance is reduced to the absolute minimum.

No other comparable machine in the field today will match the productivity and dollar profit that PITCHMASTER affords to make it a common sense investment.

**E & R MFG. CO. INC.**
**FRANKFORT, INDIANA**

Circle Service No. 61

## *GRAVELY* KILN CAR TRACTOR

**PUSHES COSTS DOWN!**

**MOVE LOADED CARS WEIGHING OVER 100,000 LBS!**

The 6.6 hp Gravely "Kiln Car" tractor is specially adapted to move your cars in and out of tunnel kilns, spot to off-bearing belts or storage areas.

Gravely engineered the new tractor exclusively for brick and ceramic plant use, after serving the industry for years. The tractor features a customized Front Hitch to fit *your* cars!

**Gravely Users Report:** (Gravely) is "small enough to get around among the crowded tracks, yet powerful enough for the job of moving the cars." R.R., Jackson, Miss. "We can recommend it (Gravely) very highly to other manufacturers in the industry." A.L., Gorham, Maine. *Investigate For Yourself!*

**30 GROUNDS MAINTENANCE TOOLS!**

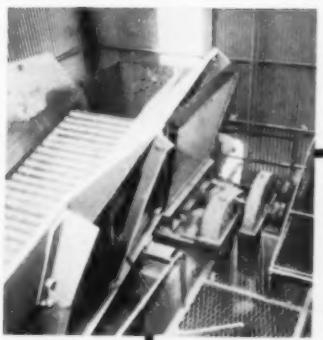
Extra Dividend! The same Gravely Tractor powers 30 year-round *ground maintenance* tools.

**FREE LITERATURE—DEMONSTRATION!**

Send for special "Kiln Car Circular" and "How To Cut Costs" catalog. See on-the-job pictures and detailed information on Gravely Equipment. Ask about a Free Demonstration!

***GRAVELY TRACTORS***
**P.O.BOX E49-C DUNBAR, W. VA.**

Circle Service No. 62



## EAGLE

## Double-Roll Crusher fits the job at CLOUD CERAMICS

Quickly reduces clay, at surprisingly low cost, to suitable size for grinding in following Dual Eagle 9' Dry Pan at this plant. Exclusive Eagle action of slow turning hooked-tooth feed-in roll which grips and feeds clay lumps to opposing fast turning hooked-tooth slugger roll gives maximum economy with minimum operating and maintenance costs.

Eagle efficiency and economy fit the job at Cloud Ceramics, Concordia, Kansas. The Eagle Crusher is fed by an apron feeder in this neat installation. Bulletin 952 shows all three models—Junior, Standard and Senior—on the job. Send for a copy!

SINCE 1872
EIW
EAGLE IRON WORKS

**EAGLE IRON WORKS**
**ENGINEERS • MANUFACTURERS**
131 Holcomb Ave., Des Moines, Iowa
***GRINDERS • DRY & WET PANS • SHALE PLANERS***

Circle Service No. 63

# Classified ADS

Limited to Want Ads, Consulting Engineers, or Used Equipment ads. (wanted or For Sale)

TRANSIENT WORD ADS: 15c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $3.00 each insertion.

POSITION WANTED ADS: $3.00 for 25 words or less; each add'l word 15c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

DISPLAY-BOX TYPE ADS

$10.00 per inch. On advance orders for twelve consecutive issues, $15.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2¼" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

**BRICK and CLAY RECORD**

A CAHNERS PUBLICATION

**5 S. Wabash Ave., Chicago 3, Ill.**

## WANTED—HELP

MANUFACTURERS representatives wanted for the south—West and Northwest by an old established kiln car and steel fabrication manufacturers. Write Box 3-BAX care of Brick and Clay Record.

CERAMIC ENGINEER—Large modern sewer pipeplant located in Midwest. Man who could eventually take over plant operation. Give experience references, and salary desired. Write Box 3-BCB care of Brick and Clay Record.

New Modern brick factory with tunnel kiln, outside of Mexico City, going into production in May, looking for thoroughly experienced brick man for 3 months period to start the plant. In case mutual satisfaction this man might stay on permanently. The man must have long practical experience with clays, grinding, mixing, setting the dies, etc. Send complete resume to P.O. Box 21095—Mexico City—Mexico.

WANTED—CERAMIC ENGINEER—who would rather make brick than eat. Hours are long, responsibilities heavy. Tunnel kiln and production experience desirable; initiative and good judgment essential. Salary negotiable. Write Box 3-BDA care of Brick & Clay Record.

PLANT Superintendent for midwest clay pipe plant. Duties include product design and development as well as normal supervisory responsibilities. Reply, with complete resume including training, experience, age, family status, and references, to Box 3-BEA care of Brick & Clay Record.

PROGRESSIVE Midwestern face brick manufacturer needs experienced face brick superintendent for tunnel kiln operation. Address Box 1-BAF, care of BRICK & CLAY RECORD.

FLORIDA Distributor of nation's top refractory manufacturer offers exceptional opportunity and working conditions for aggressive ambitious sales engineer. Must have minimum three years successful experience selling refractories to various industries. Forward resume to McDuffie, Industrial Equipment Company, Orlando, Florida. Prompt, confidential replies.

## POSITION WANTED

Plant Management—by Ceramic engineer over 20 years experience in refractories manufacturing, as plant superintendent and general superintendent of multiplant operations. Address Box 3-BBA care of Brick and Clay Record.

CERAMIC ENGINEER with exceptional record in production management desires responsible position in structural clay products field. Capable of responsibility, leadership and execution of authority necessary for plant operation at high level with top quality product. Write Box 3-BBS care of Brick & Clay Record.

POSITION WANTED—German Brick Plant Superintendent, 33 years old, 16 years experience, desires position in American plant, leading to possible superintendent's position. Experience includes 7 years Ass't Sup't., 3 years Sup't. Write Box 3-BEB care of Brick & Clay Record.

Engineer—Technologist.—desires temporary assignments in the Heavy Clay Products Industry. 20 years experience in Geological exploration and mapping of raw materials, Research and Development, plant design and layout, combustion engineering, maintenance and supervision of operations. References. Per Diem basis. Write Box 3-BHA care of Brick & Clay Record.

## WANTED

WANTED High temperature kiln and building of approximately 40 to 50,000 sq. ft. Will consider alternatives. Write Box 3-BCC care of Brick & Clay Record.

Wanted to Buy—Single Roll Crusher. Must be in good condition. State condition, size, price and where it can be inspected. Write Box 2-BAT care of Brick & Clay Record.

## FOR SALE—USED EQUIPMENT

FOR SALE: Crawler Shale Planer. 6' & 9' Dry. 8' Wet Pans. 250 Dryer Cars 24" ga. Six Komarek Greaves Briquetting Presses. Steele 30B, 40B, Intl. "Porcelain" desired Brick Machines. Boyd 4-mold and Gates 2-mold Dry Presses. Boyd Dry Press Installation. FRH 2B, Steele 18A Cutters. Ladd Cronin Circular 70' dia. Other Tunnel Kilns. 4x30, 4x40, 8x125 Rotary Kilns. 4x6, 5x9, 5x17, 5x21, 7'x 48" Ball Mills. Dixie 5060 Hammermill. Mid-Continent Equipment Co., 8321 Gannon, St. Louis 32, Mo. Wydown 1-2826.

For Sale—250 single and double deck Dryer cars deck 35 by 83 inches track Ga 24 inches. Meco two track Battery electric Transfer complete with selenium rectifier and charging cable. 1 Fate-Root-Heath Type 2-B Tile Cutter, 1 L-B-Speeder ¾ Yd. Gas Shovel. All Above in good condition. Moorhead Brick & Tile Co., 5th Ave. & 11th St., St. Joseph, Missouri.

FOR SALE Chambers Royal Brick Machine with De-airing and extra parts. Watsontown Brick Company, Watsontown, Pennsylvania.

FOR SALE—Type 6 Fate-Root-Heath Brick Machine with extra strength steel driving gears and pinions. Now in operation making 86,000 brick in 8 hours. Will be available in 30 days. Will be surplus because of change-over to new brick making production line. Approximately 200 Chase Dryer Cars, 100 Single deck, 100 Double deck. Priced to Sell.

FOR SALE—About 6,000 used steel pallets in varying conditions for pipe rack dryers. Size 33 in. by 9½ in. weighing about 11¾ lbs. and made of ⅛" metal. The ends are beveled to slide over pipes. Will sell whole lot at 40 cents each, F.O.B. our plant. OLD VIRGINIA BRICK COMPANY, INC., SALEM, VIRGINIA.

## FOR SALE—USED EQUIPMENT

### JUST PURCHASED!

1—Allis-Chalmers 7' x 120' rot. kiln, ⅜" welded.
1—Symons 2' shorthead cone crusher.
2—Bonnet 7' x 60' rotary dryers, ⅝" shell.
2—Davenport 8' x 60' rotary dryers, 7/16" welded shell, comb. chambers, burners.
2—8' x 56' rotary kilns, ½" welded.
1—Allis-Chalmers 5' x 5' ball mill, 75 HP.

### IN STOCK
### ROTARY DRYERS & KILNS

1—Vulcan 10' x 11' x 175' rotary kiln.
3—National 10' x 78' rotary dryers, ¾".
2—Hardinge 8'8" x 70' rotary dryers, ⅝".
1—Traylor 8' x 80' rotary dryer, ⅝" welded.
1—8' x 60' rotary kiln, ½" welded shell.
2—8' x 56' rotary kilns, ½" welded shell.
2—Stearns-Roger 8' x 40' rotary dryers.
1—7'6" x 62' rotary kiln, ½" shell.
1—6' x 7' x 100' rotary kiln, ⅞" shell.
1—Louisville 6' x 50' rot. steam tube dryer.
2—4'9" x 32' rotary dryers, ⅝" shell.
1—Ruggles-Coles 5'6" x 40' rotary dryer.
1—Standard 3' x 23' rotary dryer, ¼".
1—12" x 8' stainless steel dryer on stand.

**PERRY EQUIPMENT CORP.**
**1432 N. 6th St. Phila. 22, Pa.**
**POplar 3-3505**

### DESIRABLE EQUIPMENT
### AT REALISTIC PRICES

Crushers and Hammer Mills
Muller type Mixers-Mills
Rotary Dryers and Kilns
Sifters, Screens, Separators
Filter Presses and Filters
Ball & Pebble Mills
Raymond Imp Mills, All Sizes
Presses and Pellet Machines

Send for "First Facts"

**FIRST MACHINERY CORP.**
**209-10th St. Bklyn. 15, N.Y.**
**ST. 8-4672; Cable "Effemcy"**

DEAIRING BRICK MACHINES—3 sizes
PUG MILLS—8", 10"—Single & Double Shaft
GRANULATORS—Chambers #51 Freese P-16
CUTTERS—Chambers, Steele #18 & Hand
DRY PANS—7' & 9'
HAMMER MILLS—Many Sizes
SMOOTH ROLLS—12", 18" & 24"
CONICAL ROLLS—Chambers & Brewer
DISINTEGRATORS—12", 16", 24"
JAW CRUSHERS—Many sizes
GYRATORY CRUSHERS—Allis Chalmers #5

50/100 + p.h. CRUSHING PLANT
w/Conveyor, Screen, Bag House

FEEDERS—5' Disc, Apron, Reciprocating
ROTARY DRYERS—24" to 8' Diam.
DRY MIXERS, Lancaster 8KG, #3, #4, Simpson #3 Clearfield #610
SIGMA BLADE & RIBBON MIXERS—Several
SCREENS—Many—Single & Double Deck
HARDINGE CONICAL MILLS—4½', 6', 8'
BALL & PEBBLE MILLS—Many Sizes
LAB SIZE—Crushers, Mixers, Screens
SLIP LAWNS—Crossley Double Deck
HAND TILE PRESS

**LIST YOUR SPARE EQUIPMENT WITH US**
**ROBERT L. CLARE**
**212 Rector St. Perth Amboy, N. J.**
**Phone Hillcrest 2-0061**

## FOR SALE—USED EQUIPMENT

DE-AIRING MACHINES—FRH (PA4) 3HP—FRH (PR6) 7½HP—J. C. Steele 80 Special, 15" auger 100 HP—Bonnot 18" auger 150 HP—American (801) 18" auger 200 HP

CUTTERS—Automatic Reel—J. C. Steele #18—Freese P25, 10" belt—Chambers #10, Roman & Norman brick

PUG MILLS—9' Freese—10' American (2nd shaft)—15' Granulators Freese/Chambers

DRY PANS—7' American—9' Bonnot—2 American 418 grinders

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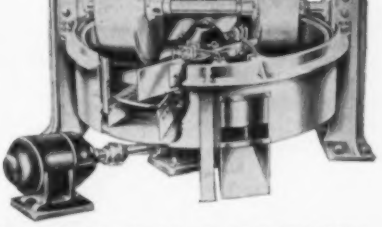

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## NCPMI Research . . .

(*Continued from page* 70)

A. J. Reed, research director of NCPMI, discussed the proposed ceramic research which will be undertaken shortly relating to fundamental studies of the mineralogical structure of clay pipe bodies. This project is one which has previously been forwarded by contract research and is now being brought into the NCPMI laboratory so that a more concentrated effort can be made on the subject.

He also stated that a new wing is about to be constructed on the NCPMI laboratory which will house a completely equipped ceramic research laboratory. Construction on this addition to the laboratory is scheduled for completion in the spring.

### Discuss Jointing

In the afternoon, a panel discussion was held on the subject, "Handling and Manufacturing Problems Related to Prefabricated Joints." Panel members were: Chester Keeney, moderator (NCPMI), Gordon Gabel (NCPMI), Richard Guinther (NATCO Corp.), R. H. Anderson (The Robinson Clay Product Co.), E. R. Ligon (W. S. Dickey Clay Mfg. Co.) and H. H. Lund (Pomona Terra-Cotta Co.).

The discussion rapidly developed into one of the highlights of the 2-day meeting. All phases of jointing were discussed and there was an active participation in the discussions by virtually all members of the audience as well as the panel. Planned for an hour and a half, the discussion was extended into a longer session because of the extreme interest of everyone present. After two and a half hours it was necessary to adjourn in order to permit those attending to keep their return plane and train reservations.

### More Meeting's Planned

This meeting was the first of its type to be held in the NCPMI organization and it is planned in the future to hold at least one meeting of this type per year in various locations around the country. It is expected that future locations will be chosen so that it will be possible to arrange plant visits in conjunction with the technical discussions that will be held.


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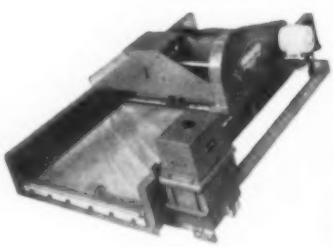

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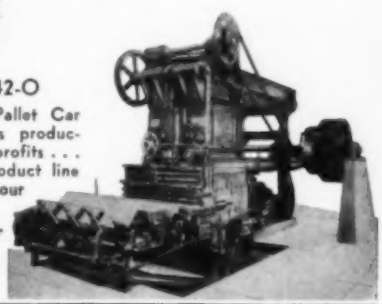

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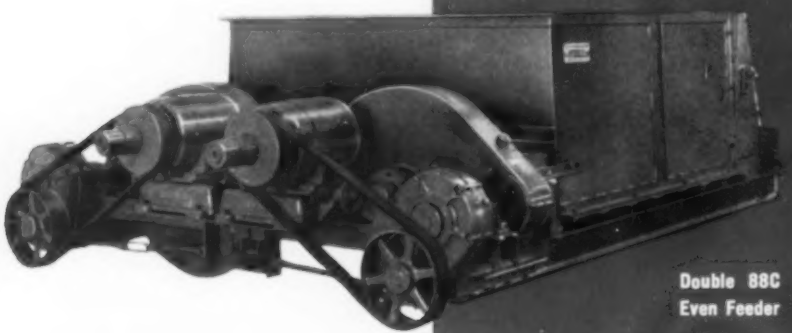

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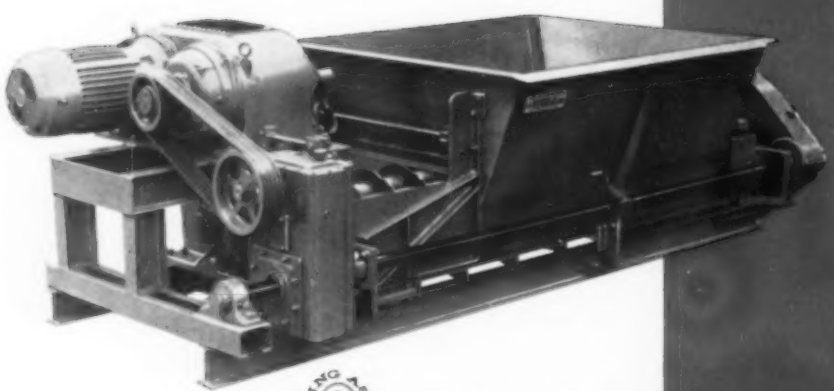

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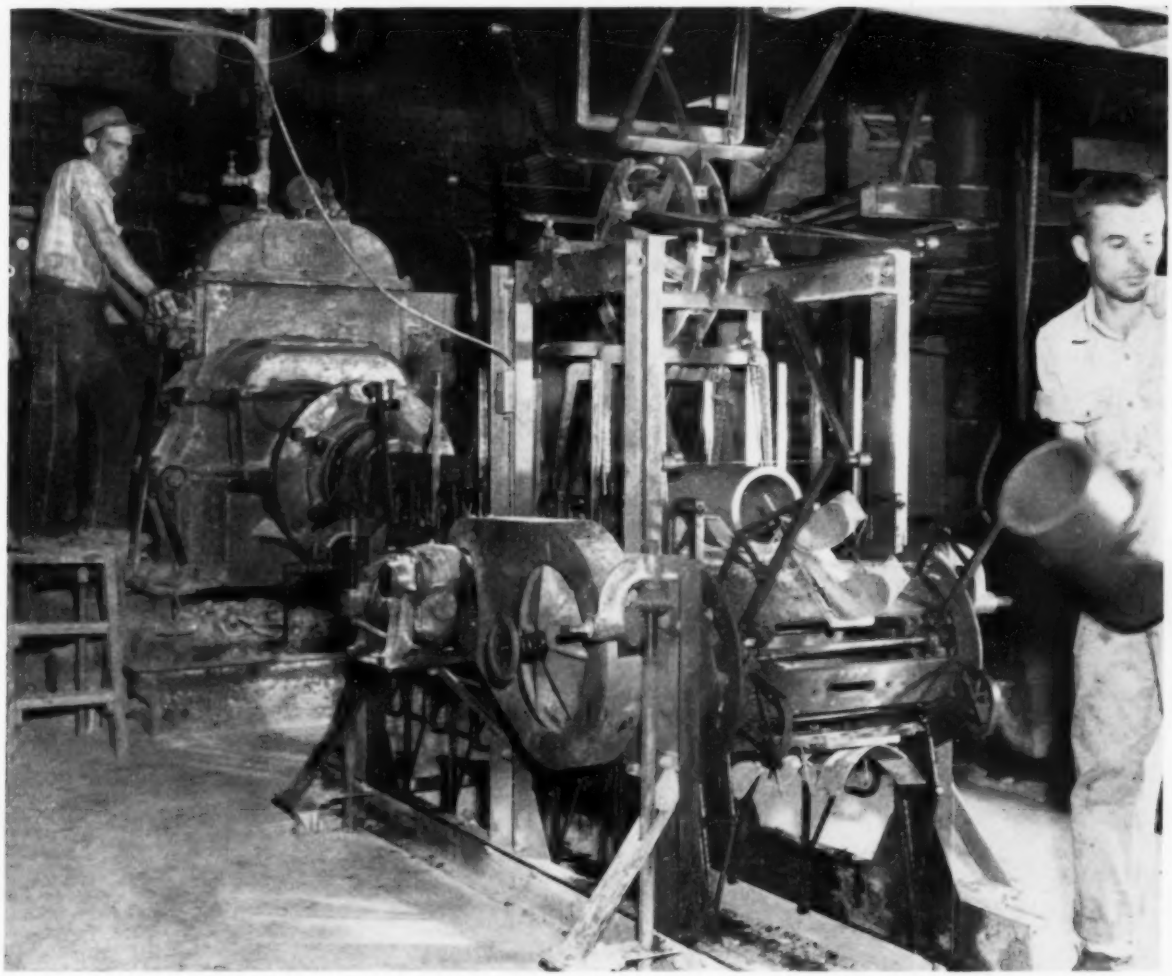

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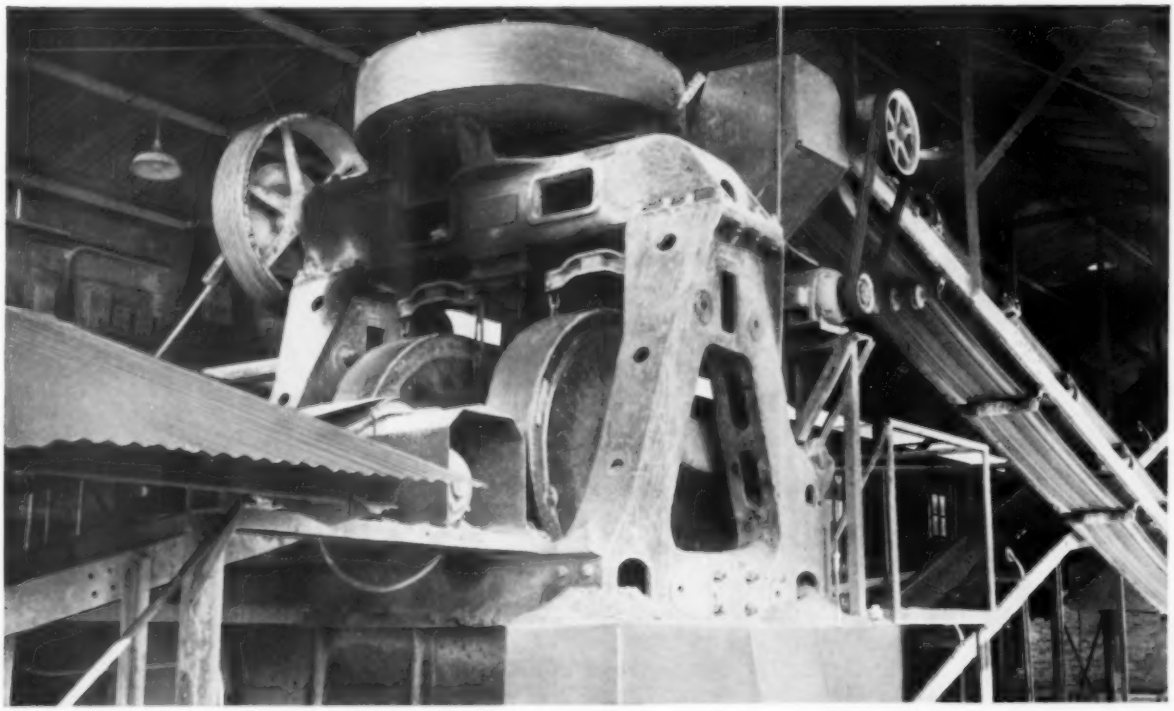

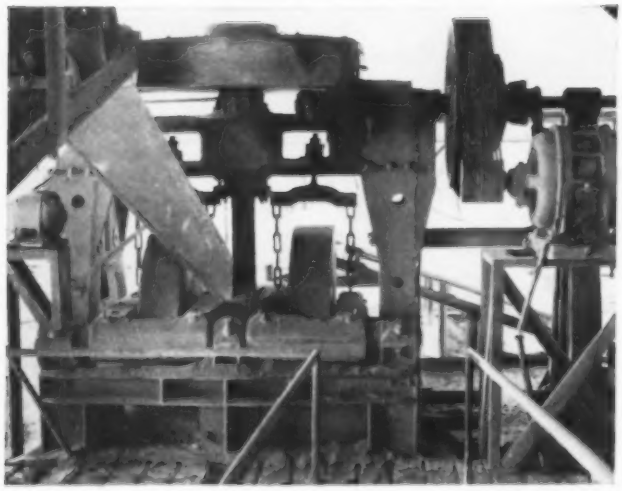

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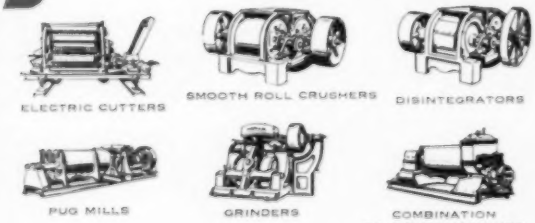


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